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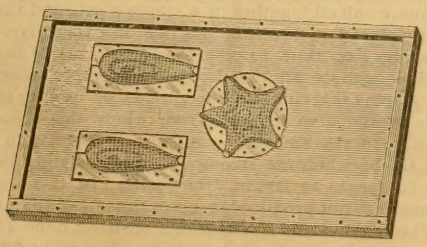
BEE-ESCAPES.

AN IMPROVEMENT ON REESE'S; A VALUABLE INVENTION.

THE cut tells the story, and I can almost hear the reader exclaim, "Why didn't I think of that?" It represents a solid board, with bee-spaces on one side, to match hive and supers. The holes (seen below the wire cloth) are bored through the board, of any size from ¾ to 1½ in. The cones are horizontal instead of perpendicular and are double, or one inside the other, with a good bee-space around the inner one. They are made by pressing a piece of green wire cloth over a piece of wood, of the shapes given below, and just a bee-space thick. It is surprising how nicely the wire cloth can be shaped. There should be just room enough for a bee to pass out at the exit; but it is not so easy for any to get in, on account of projecting wire. The efficiency of the escape does not depend on this, however. Should



DIBBERN'S BEE-ESCAPE.

any bee find its way into the outer cone it would be almost certain to travel *around* the inner cone, and out again into the hive. This will fool any ordinary bee; but should one occasionally find the way back into the vacated super—why, it would soon become lonesome, and down through the hole it would go.

The cones are fastened to the under side of the board, and the cones will just fit nicely in the bee-space under it. The cones can be removed in a moment, and the holes corked up, and it can then be used as an inner cover. I also use such a board with one or two holes open, to place under supers of finished sections, to keep the white new comb from getting soiled, while the honey remains on the hive to ripen. Of course, some bees remain with the honey to care for it, but it comes out nice and bright, at the close of the white-honey flow. The bees can protect it from the moth, and keep it from leaking, much better than we can. Then what a satisfaction to handle nice, clean, dry sections, instead of sticky ones, when we come to pack in shipping-cases! I think these boards will be wanted by our best bee-keepers, for this purpose alone. It will be seen that I have a triple use for these boards.

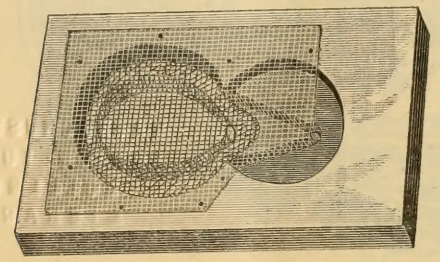
I have experimented and studied bee-escapes for several years. Many are the contrivances that I have tried with varied results. I have tried the tent escape, and others, but none proved entirely satisfactory. The Reese escape was the best of any heretofore; but that was not perfect, though it has recently been improved. It is my opinion, however, that depending on a vertical funnel-shaped tube, requiring room under it, will always be objectionable. Some have lately advised using small cones in the holes through the solid board; but such will be found insufficient. To Mr. Reese, of Winchester, Ky., however, belongs the honor of giving us an escape that generally worked very well. It was in using this escape, and trying to overcome its weak points, that I discovered my horizontal escape. But for his escape mine might never have been thought of. Mine is all right, and I think it will be found all that can be desired. I now make it free to the bee-keepers of the world.

I hope all will give it a trial. If it will help to make the labors of bee-keeping any easier or more pleasant I shall feel well repaid. C. H. DIBBERN.

Milan, Ill.

After we received friend Dibbern's article as above, the following communication from friend Reese himself came to hand:

Mr. Root:—I inclose you a portion of a private letter just received from Mr. C. H. Dibbern, which will explain itself somewhat, in regard to the latest improved bee-escape, of which I send you a model.



REESE'S HORIZONTAL BEE-ESCAPE.

You can see there are no projections in my new escape to interfere with bee-spaces in any way; and the escape-boards can be piled up snugly for future use. They can also be used for inner covers for brood-chambers or supers by stopping the passage; and in hot weather, what a beautiful plan for ventilation over the top of the surplus cases!

Winchester, Ky., Dec. 4. J. S. REESE.

The letter referred to by friend Reese is as follows; and as it contains some additional hints we give it to our readers:

Dear Friend Reese:—Your welcome letter of yesterday, together with your model of bee-escape, is just at hand. I am much pleased with your escape, and I know it will work perfectly. In so far as there are no projections, it is perhaps an improvement on mine. Still, as all modern hives have bee-spaces, I see no objections to it on that account. Again, when used for an inner cover, yours could be covered by a piece of tin, while mine would have to be removed, unless there was a full bee-space in under the board, in which case it would be necessary only to plug up the hole and turn it over. I presume it will require a season's experience to decide which is really the better. I admit that yours is an ingenious arrangement—something that I tried to conceive, but failed. Since writing you before, I have made a board with a center escape, and it is a beauty. Still, I don't know that it is any improvement on the single-exit escape.

Milan, Ill., Dec. 3. C. H. DIBBERN.

Without question, friends Dibbern and Reese have given the bee-keeping world a valuable invention, and they both deserve the thanks of bee-keepers for the part each has played in the matter, and for so freely giving their ideas to the bee-keeping public. Friend Reese's bee-escape was a good thing, and worked satisfactorily, as we gather from a large number of reports; but there was just one trouble with it, and that was, that the cone stuck up perpendicularly above the board, making it necessary to have an empty super, or something of the sort, to take in the cones; but friend Dibbern has very ingeniously laid the cones, as it were, on their sides, and flattened them down so they could be adapted to an ordinary honey-board—the same, bee-spaced on one or both sides, as the case might be. With such an arrangement it is possible to put the escape between the hive and super, without bothering with an empty super-shell. It would be well to incorporate Reese's escape into Dibbern's board, then there will be no possibility of the cones themselves being damaged. ERNEST.

DON'T RAISE A SURPLUS OF DRONES.

DOOLITTLE'S VIEWS ON AN IMPORTANT MATTER.

FROM what I have seen in nearly every apiary which I have visited in the past, I am of the opinion that bee-keepers lose very much of the profits which they might otherwise secure, by having too much drone comb in their hives. Each colony should be allowed one or two inches of drone comb, but no more, unless such colony is one which we wish to rear drones from for the improvement of our stock, and in this case I generally give from one to three frames of such combs. Where three drone combs are used in each hive, it is a rare thing that I secure any surplus honey from this colony, for the drones will consume nearly if not quite all the surplus honey gathered by that colony, especially if I try to have the colony keep these drones throughout the season. To be sure, the colony will generally give some surplus right in the height of the season; but this must be given back for the drones, if they are kept after the honey harvest. I have given this item so that the readers may know just what a lot of drones in each hive will cost them. "But," says one, "if this is the case, why allow any drone comb in any but the colony which is to rear drones?" The reason for allowing one or two inches of drone comb to each colony is, that all colonies, which I have ever seen, will have some drone comb any way, even if they have to tear down the worker-cells to get it, building drone comb in its stead. Now, where we try to exclude every cell of drone comb, the bees revolt, and build drone comb in out-of-the-way places, a few cells here and a few there, so that the bee-keeper has no chance of keeping unwelcome drones from flying, by way of decapitating them just before they hatch, unless he uses a drone-trap, which thing is an inconvenience to the bees and their owner, generally speaking. By having this one or two inches of drone comb all together in a single comb, and that comb placed in a certain position in every hive, it is a very easy thing to open the hives every 23 days and decapitate all the drones in a whole apiary. By placing this comb on the outside, or next to the side of the hive furthest from where the brood-nest is, in the spring, the queen will not lay in it till the bees become strong enough to compel her (so to speak) to lay in drone-cells. In this way drones are not produced in hives thus fixed till late in the season; and if left in this position, none will be reared late, as these outside combs are the first to be filled with honey, thus doing away with any more drones, as the bees are not as anxious for drones at this season of the year, hence will not take the honey out of the drone-cells to rear them. In this way, about twice decapitating the drones during one season is all that is needed with any colony.

"But," I think I hear some one else say, "it is

easy enough to talk about having only one or two square inches of drone comb in a hive, but quite another thing to keep the drone comb down to this; for almost every year holes get in some of the combs by way of mice, moldy pollen, etc., which the bees fill with drone comb when they 'patch up.' How is this to be avoided?"

To remedy this matter, my usual plans have been, either to fill these holes with old worker comb or with foundation, using the comb where wires were not used in the frames, and foundation where the frames were wired. The best time to do this is when fruit-trees are in bloom; for at this season there is little honey in the hive, hence all patches of drone comb are readily discovered. Take all but the desired combs, which have drone-cells in them, out of the hive, and substitute perfect worker combs for them. Now take these combs to the shop, and, after cutting out the drone-cells, fit a piece of worker comb into the hole made by removing the drones; or if the comb has a hole in it, fill it with worker comb, thus getting the start of the bees. To best do this, I have several sizes of old fruit-cans, without either top or bottom, one end of which has its edge filed sharp, so that it will easily cut a hole through the combs by twirling a little while pressing down. By using the one which will just take out the drone-cells, a good job is done; while by using the same to cut out the "patch" of worker comb, the same will fit in exactly. These worker "patches" are always taken out of imperfect combs, which materially lessens the number to be patched. For wired frames, cut away the cells around one side of the hole, so that the septum will be laid bare about the edge of it, and press a piece of foundation on this bared edge, having the foundation so warm that it will adhere to the comb while doing it.

Now, this is the best way I used to know, and the only way, where the apiarist is short of combs; but there is a point about it which I do not like. All around the edges of this "patch" there will be cells of all shapes and sizes, which the bees pursuade themselves into thinking are for drones, whenever any are large enough to rear drones in, so that we often have as many drones reared around a large "patch" as would be reared in one square inch of drone comb. To remedy this has caused me some study. When I came to have a surplus of combs, so I did not need all I had in early spring, I thought out the following, which has proved as near a success as any thing that I know of. All the imperfect combs were taken from the bees as before; but instead of being "patched" they were hung away in a dry airy place till the bees became strong enough so I could form nuclei. Now, all nuclei or very weak colonies desire only worker-bees, so they will build cells of that size only as nearly as may be, they being always willing to build comb whenever there are bees enough, and honey coming in from the fields, or they are fed. After cutting out the drone comb, or thinning the combs as I desired, they were set into nuclei to be patched; and, let me tell you, the patches thus put on were very pleasing to my eyes, and I have here told my readers how it is done, so they can share the pleasure with me, next season, they having plenty of time to prepare for the same.

Borodino, N. Y., Dec. 19. G. M. DOOLITTLE.

Friend D., I agree with you exactly, and I want to thank you for one or two ideas that, so far as I know, have never before been brought out. One is, that a colony having a large number of drones need not be expected to furnish any surplus, even though the season be extra good. Another is, managing, by decapitation every 23 days, so that not even a *few* drones shall take wing from the hives which we prefer shall not rear any flying drones at all. The third idea is, turning combs over to nuclei, that contain patches of drone comb, and letting the worker-bees of said nuclei do the patching. Since you mention it, I feel quite certain *they* would put in *only* worker comb, but I never thought of it before.

SKUNKS AND BEES.

THE HABITS OF THE FORMER; NOT AN ENEMY OF THE BEE-KEEPER AND THE FARMER.

WHAT do I know about skunks? I have had a great deal of experience with these animals. I have caught hundreds of them in traps. Before their skins became valuable for furs I got rid of them the best way that I could. The main thing, of course, is to get the life out of them without making a smell. When I was trapping up on the frontiers of Iowa, 30 and 40 years ago, there was no sale for the skins; then I used to take them out of the traps alive and let them go. Sometimes they would come back and get caught the second and third time; then I would shoot them. But few know how to shoot a skunk and not get a smudge. If you shoot his head off, there will be trouble, as their weapons are still in good order, and will be used. If you want to shoot the skunk when it is in a trap, stand by the side of it, and about 10 or 15 feet away, with a good load in your shotgun. Then shoot him through the small of the back. The object is to kill the hind end of the animal first. By cutting through the back you paralyze all the back parts, and there will be no trouble. I have tried poisoning them when they were in my traps. Put strychnine in a bit of lard, or in a small piece of meat, and place it on the end of a pole 10 feet long. Poke it out to the skunk slowly. He will accept it and eat it right down, and in a few minutes will be dead. But very nearly all that I killed that way made the characteristic bad odor. I never saw one die from strychnine but that I felt sorry for the poor thing, as it appeared to suffer so much.

Skunks are easily trapped; then if you don't want to save the skins, shoot them through the back. But if you want to save the fur, get the skunk into water deep enough to drown him. If the water is not over half a mile away you can lead him there if you don't hurry too much. I have done it a great many times. There is no trouble in handling a skunk if you do not fight him. I can always make friends with him, and then take him where I please.

When we get a skunk in a steel trap, unless something has been there to frighten him, or fight, when we get there there is no bad smell. After he has gotten into the trap, as there has been no one there to plague him, he has spent all his energies in trying to get away, and has very likely got the trap-chain wound around every thing within reach, and the poor thing can hardly move. Now, we want to get the chain free. We can not go right up to it at first. The skunk is watching, and is afraid that it

is going to be hurt. We will try to make it think that we won't hurt it. Walk and move about at a distance, gradually coming nearer. Talk or sing a little; watch the chap closely. If it raises its flag (tail) we are to fall back a little. If we have a hatchet or hammer, pound lightly on something; work up to it by degrees, all the time watching his flag. As long as that is down there is no danger. Usually it will take half an hour to get up to it safely. Then work carefully. Begin with the end of the trap-chain; get that loose first, then all the chain clear. We now want a pole about 10 or 12 feet long. Fasten the trap-chain to one end of it, and get hold of the other end. If every thing is all clear, begin to lead the animal toward the water. The poor thing will be glad to go if we give it a chance. We go slow at first; but if we have clear ground, and the animal is caught by the fore foot, it will come along about as fast as we walk. If caught by the hind foot it will go about half as fast. When we get to the water, get the skunk into it deep enough to cover him, without holding him down. All the poor thing thinks of now is to get out of the water, and will drown, and never think of using his weapon of defense.

But now having told you how to kill the poor creature, I am going to put in a plea for his life. Why kill the poor thing? I just want to tell you that the skunk is a great destroyer of grubs and bugs of all kinds, and I never saw any evidence that it ever eats any of my bees. But it is always, when the weather is suitable, digging grubs out of the fields and garden. They are very plentiful here, and I am willing for them to stay. One year an old skunk had a litter of young ones under a corn-crib in the corner of our home bee-yard. I fed her and petted the young ones. They are very affectionate, and as nice as a cat—if we don't abuse them. They do the farmer more good than harm. They are around my house nearly every night in the summer. We often see them when we go outdoors in the evening. In one respect they are like folks. There are some bad ones amongst them that will kill chickens, and perhaps eat bees. If I knew one was doing mischief I would set a detective for him in the shape of a trap, and kill it; but I would not kill *all* because *one* was bad. E. FRANCE.

Platteville, Wis., Dec. 9.

Well done, old friend. You have given us an exceedingly valuable paper, and one that perhaps no other man could furnish. So you have really made friends and got acquainted with this little animal that seems to be looked upon with disgust by almost every member of community. I am very glad indeed to hear a word in its favor. I think, however, that the testimony is incontrovertible that they do eat bees, at least occasionally, in considerable numbers. We certainly ought to try to encourage an animal that destroys the grubs and insects. By the way, old friend, your fund of information and knowledge in regard to the habits of the wild animals of our country, it seems to me, ought to be put in a book. I doubt whether any work extant has ever been able to give the facts you have in your possession in regard to these near neighbors of ours. The trouble is, that those who are acquainted with the habits of the denizens of our forests can hardly be induced to write their knowledge out for print.

BEE-HUNTING IN THE SIERRA NEVADA MOUNTAINS.

A BEE-HUNT.

Continued from last issue.

IN the month of June, 1886, a party of four of us started out on a bee-hunt. We intended to go to Peavine Valley, about 35 miles northeast of Placerville, then across the American River, and up Silver Fork Canyon, as bee-trees in that neighborhood generally contained considerable honey. With this much in the way of introduction, I shall proceed to give you a detailed narrative of our journey, and experience in hunting wild bees.

We took an early start in the morning, and were several miles on our journey before sunrise. It was a beautiful morning. The air was fresh and invigorating; wild birds of various colors sang their lays in the trees overhead, as if to welcome the great sun, for another day. Myriads of small insects were beginning to circle in the air, with their monotonous hum, while ever and anon a beautifully colored hummingbird would go flitting by. The Sierras were white with bloom, and the air was loaded with the fragrance of various wild flowers.

We reached the American River about noon. The wild scenery along this river is grand beyond description. The river rolls and tosses impetuously in its rocky bed. The banks are fringed with a growth of alders, willows, weeping-aspen, dogwood, etc. In some places in the river there are beautifully clear pools of water where mountain trout swarm in abundance. Ever and anon we came across the water ousel, a small brownish-colored bird, flying about from stone to stone, presently diving into the water, disappearing from sight. In a few seconds it came to the surface again, after going several feet from the place of starting, hunting for a meal of young fish and other things, upon which it feeds. The king-fisher is seen patiently watching from some commanding point, ever ready to pounce on any unwary fish that dares to venture too near the surface of the water. On either side of the American River the mountains rise abruptly to a height of several hundred feet. The north mountain-sides are covered with a dense growth of young firs, spruces, hazels, ceanothus, flowering dogwood, maples, etc. On the north side the snow generally lies from a month to six weeks later than on the south side, thus making the bloom considerably later than on the south side. The south sides are generally pretty open. The mountain-sides are clothed with a scattered growth of manzanita, chaparall, shingle-brush, etc., all of which bloom early in the season. Later on in the season come goldenrod, asters, lilies, lupines, peppermint, pennyroyal, etc. The further up the river we go, the grander and more impressive the scenery becomes. Dark forests of pine, fir, and spruce, rise up in the distance, while here and there a grand old sugar-pine towers up its head sublimely from the ridge-top.

After following the river as far as we intended, we went directly up the mountain-side. At length we came upon a small level spot, and took a rest under the shade of a large oak. After resting an hour or so, and taking a refreshing drink of the cool mountain water, we again resumed our journey. We found a great many wild bees at work on various flowers. When about half way up the

mountain we stopped to admire the beautiful scenery abounding on every side. Far away in the distance, like a silver ribbon, we could discern the Sacramento River, and the miles of valley bordering on each side. To our left rose the majestic summits of the Sierra Nevada Mountains, covered with snow, while in front of us, on the opposite ridge, a dark belt of silver firs girdled the mountain. After resting a few moments we again began the ascent of the mountain. The first thing that attracted our attention was a small mountain meadow with its crooked streams, covered with

Rocks and lonely flower leas,
Playgrounds of the mountain breeze.

There were innumerable wild flowers in bloom, of all hues and colors. We found a number of bees working on Mexican clover. In a few moments we had a line started, which ran directly up the mountain-side. Arriving at the top, and not finding the tree we were in search of, we continued down the other side, and soon came across their home, situated in a tall black fir, about 100 feet from the ground. We found two more trees that afternoon.

Fatigued with our day's journey, we proceeded to make camp for the evening, and get supper. We soon had a great fire blazing, wood being there in abundance. Our journey had sharpened our appetites, and we ate our supper with a keen relish. After supper we gathered a fresh supply of wood, and then made us a bed of pine needles. We retired early, and slept soundly until morning. Getting up early, and rekindling the fire, we soon had our coffee boiling, and made preparations for breakfast. After breakfast we concluded we would cut one of the bee-trees and have some honey to eat. We intended to cut the tree we found first, a large yellow pine. Two of us worked a cross-cut saw, and two more chopped. The tree was over five feet in diameter. After five hours of steady work, a monarch of the forest came crashing to the earth, bringing in its fall a couple of smaller trees. The bees were terribly confused at this sudden downfall of their long-cherished home. After waiting for the bees to get filled up with honey, so they would not be so cross, we went to work and soon had the tree opened. We took out comb after comb, filled with honey. We obtained almost 200 lbs., and if the empty comb had been filled as it is at certain seasons of the year, there might have been nearly 300 lbs. of honey. Some of the combs were over five feet in length. The bees clustered up in one corner of the log, and I placed their brood inside, fixing it up with sticks so that it would not tumble down. In a few hours the bees were covering their brood nicely. I fixed some bark over them to protect them from wind and rain until I should have time to come after them.

Placerville, Cal. S. L. WATKINS.

To be continued.

MRS. AXTELL'S REPORT.

WINTERING; TAKING OFF HONEY; MARKETING; DISPOSING OF CHUNK HONEY, ETC.

THE weather has been very warm for several days. Bees in the cellar are quiet, although the thermometer is up to 52. We carried water, and poured it along the alleys between the hives. We keep the cellar dark, but keep two windows open, and the door that comes up into a large room, and both doors of the room are open. I think pouring water around in the cellar has a great deal to do in keeping them quiet. Before we did that, they were very uneasy. There are 156 colonies in the cellar, which is 20 x 20 feet square. We also have 114 wintering out of doors at the out-apiary. The bees seem to be in very good condition this fall, but they are light in stores.

We obtained about 13,000 or 14,000 lbs. of honey, mostly gathered in the spring. It is white honey. As it is a good deal of work to prepare so much honey for market, we sell the most of ours in Chicago, where it is sold by commission men. It would be impossible for us to sell our honey ourselves. We have orders for it as fast as we can get it ready for market, and could sell much more if we had it.

The honey that is not well filled out, we cut out and sell in pans and candy-pails. We fill a pail full of chunk honey, then fill solid with liquid honey. We next melt up some rosin and lard into a soft wax, and wax the top of the pail, and nail down the lid. We instruct the buyer, as soon as he receives it, to loosen the top a little at one side, and drain off the liquid honey, or bore a hole in the bottom and let it all drain off. This is the way we fix it when we send it a distance by the cars.

HOW WE TOOK OFF OUR HONEY.

We took off all our honey this fall without the use of a smoker or bee-hat. When the first frost came we hurried out in the morning to the work, and found the bees below out of the supers and in the brood-combs, except a very few hives, and those we left until a colder morning. We slipped off the supers and set them on top for a hand to carry into the honey-house; laid back the honey-boards, and did not cover the hives until the supers were all off. There were a very few bees carried into the honey-house; but during the day they flew to the window, which we swung open, and they went home. We tried using Dr. Miller's small tents of mosquito-bar over the supers during warm weather, and found the bees soiled the sections by their droppings when confined inside of the tent before they found their way out at the top. We found but little trouble in getting the bees out of the supers by smoking them vigorously at first, not too fast, so as to confuse the bees, but enough to drive them down quickly, and then snatch them off before the bees came up into them again.

PACKING FOR MARKET.

In packing honey for market, great care is taken to have the bottom and three-fourths of an inch or so up the sides well protected by two or three thicknesses of paper, with no break in the paper to let the honey leak through. We generally have it packed several days before sending; and if any crate leaks we unpack and fix it so not a drop can run out. It *hurts the sale* of honey very much to have it *leaky and dauby* to handle. It soon becomes very untidy in looks; and it is the appearance of the honey that makes it sell quickly. We have taken great pains, in packing, to put all weak combs between two strong ones. Occasionally we find a crate or super of very nice honey, but sealed only at the top and a little at sides. Such ones we pack between two strong ones, and turn them bottom upward. We hear no complaints of their being broken down, though I believe if we could make sales of all such honey at home it would be better; but we had more of it than we could well sell at home.

MRS. CHADDOCK'S DEATH.

We were sad to hear of Mrs. Chaddock's death. One by one we are passing away; and it seems to me it is unwise to defer a preparation for that other world to which we are all so rapidly hastening. Yes, Mrs. Chaddock was a friend to humanity.

So be my life a thing felt, but not lauded,
And I but remembered by what I have done.

As the wintry winds whistle around us, let us each one look around to see if we can not help some one else to be more comfortable.

Roseville, Ill., Dec. 14. MRS. L. C. AXTELL.

No doubt, good friends, you have trouble in keeping your bee-house cool during this very warm winter. It is now December 23, and we have radishes, lettuce, and onions, still unharmed in the open ground. In fact, for two weeks past there has hardly been a frost. The frequent occurrence of such warm winters in our locality has been the strongest factor in deciding us to winter our bees in the open air. Dandelions are now in bloom, and the bees are flying almost every day. Your plan of taking off honey after the bees have been driven below by frosty nights is a very simple and easy one. The greatest drawback I have found is, that sections are too much soiled by being left for the bees to travel over until time for frost. The objection you make to Dr. Miller's tent, I think would not apply if the honey were taken off during warm weather.

JAPANESE BUCKWHEAT.

IS THERE DANGER OF HYBRIDIZING THE SEED?

I SEE by the reports you receive, that very many of the growers of buckwheat sow it beside other kinds. Most of them do the same here, then they cut a little strip of the Japanese with the other kind, thinking the rest will be pure, not realizing that bees will mix the pollen of the two kinds. Now, the effect of this mixing of the pollen on the next sowing of the seed is very plain. Some stalks will ripen later, and the grain will be smaller. This ignorant, reckless management, if kept up, will soon make the variety only a little improvement on the old. Now, friend Root, this buckwheat is too valuable to be thus spoiled. Not only does it yield nearly double the amount of grain that the other varieties do, but it is much earlier. I commenced cutting mine, on new land, in just two months from the time of sowing; and then it stands up so much better. On my five acres of land there was not $\frac{1}{16}$ of an acre lodged. It was a heavy growth, 4 to 4½ feet high, and leaned only a little, so I had to cradle it one way. I believe it is equally good for honey or flour.

If there is any seed yet in the country that is absolutely pure, some one ought to procure it and keep it for sale; and I believe you are the ones to do it. I'd rather pay three times as much for pure seed, that which has never been sown nearer than 50 rods of any other kind, than that which is offered in the market, or my own either, which is as pure as the seed I obtained of you, as there was no other buckwheat nearer then 80 rods. The extra expense of pure seed is not of much account, as it takes so little seed; 18 lbs. is plenty on strong clover land. H. S. HOXIE.

Holloway, Mich., Dec. 4, 1889.

If what you say be true, it certainly is a serious matter; but I should like to have our experiment colleges tell us whether buckwheat will mix. Will Prof. Cook or W. J. Green please tell us what they know about it? and if they don't know will they undertake to have some experiments made in regard to the matter, during the coming season?

BASSWOOD SECTIONS VS. BASSWOOD HONEY.

WHAT H. R. BOARDMAN THINKS OF THE MATTER.

THE destruction of the basswood timber, much of which is used for making honey sections and other bee-keepers' supplies, is rapidly exhausting the honey resources, and is well becoming a subject of alarm to bee-keepers. We must turn our attention to some other kinds of timber for this purpose; for when our resources are exhausted, your business as well as ours will be at an end. I have no doubt that basswood is better adapted to making one-piece sections than any other timber. But every thousand sections so used represents so many pounds of honey resource wiped out of existence; and while I do not expect to stay the destruction of this valuable timber to the bee-keeper, I have decided to give the little influence in my power in that direction. I have decided to buy no more sections in future, nor bee-supplies of any description, made from basswood timber. This may look to you very feeble, but *it is right.* H. R. BOARDMAN.

East Townsend, O., Dec. 18.

Friend B., I heartily agree with you in what you say about the destruction of basswood; but I do not believe that it will be best for all of us to declare that we will use basswood no longer for sections. The matter was discussed quite freely, after reading your paper, at the Michigan State Convention, and different parties present mentioned a great variety of purposes for which basswood is now being used. One friend said, that in his locality they were cutting more of it for broom-handles, a great deal, than has ever been used for sections. Another said they were using carload after carload in the manufacture of paper. The envelopes we are now sending to our customers are said to be made of basswood. If all the bee-keepers in the land should at once give up basswood, it would probably be only a drop in the bucket. My advice would be this: Commence to raise basswood. If it does not pay for honey, I think in many localities it would pay for a variety of industries for which it is now being used. Not only should we plant basswood, but let us keep cows and other stock from our timber land. When basswood sections were first made, scarcely ten years ago, a man brought us some logs. Well, a few days ago he brought us some lumber made from the shoots that started up around the stumps. I believe such shoots always come up and grow with incredible rapidity if we only keep stock off the land.

GARDENING FOR JANUARY.

THE above was crowded over into our next issue, by the report of the convention at Lansing, Mich.

A VISIT TO G. M. DOOLITTLE.

FRIEND STEPHENSON TELLS WHAT HE SAW AND HEARD.

EDITOR GLEANINGS—*Dear Sir:*—Possibly a short description of Doolittle's apiary may be interesting to you and such of our bee-friends as have never visited Borodino. After leaving Medina I proceeded to Niagara; and, as sunshine favored me, next morning I turned it to excellent account with my camera, and got some views of the Whirlpool, which I failed to get on my former visit. These, on development at Eastman's, turned out most satisfactorily, and you shall have some prints later on. The drive from Skaneateles to the village of Borodino was pleasant, the country rolling, and the road for some distance skirted the shore of Skaneateles Lake, a fine body of water some 16 miles long, abounding in lake trout, and at this time haunted by flocks of duck and wild geese. Mr. D.'s house is located on the edge of a rich alluvial plain. About 20 rods off is a fine basswood grove, etc., which our friend purchased for a windbreak as well as for the purpose of supplying food for his bees. Mine host was absent with his rifle on my arrival; but the honors of the place were amply performed by his *lesser* half till his return, and then, indeed, I had a treat. We adjourned to the workshop, amply furnished with engine, buzz-saw, and all the various accessories for hive-making, and then began a most interesting lecture on bees in general and queens in particular, rendered all the more graphic by an inspection of the apparatus that has been so ably described by the originator himself from time to time in the pages of GLEANINGS, and in his book, "Scientific Queen-Rearing."

I was particularly well pleased with his division-board feeder, which, as you may remember, is practically a frame with sides built up of thin stuff to an inch or two of the top, much on the principle of your Miller feeder. Another thing that attracted my attention was a comb-foundation machine consisting of a pair of plaster dies fitting over one another, and inclosed in a box which opened and closed like a book. I witnessed the operation of making some foundation in it, and I think that, for small operations, it is a very desirable machine.

Next in order came the bees themselves. Most of his hives were still on their summer stands, protected by chaff packing and top cushions contained in an outer box. Some of these will be removed to a bee-cellar later on. The hives had a decided tilt forward to keep out moisture, *a la* Muth. The bees, of which I saw a few specimens under their quilts, were the yellowest Italians I ever saw. On one of them I counted five yellow bands. Indeed, the golden color extends nearly from the thorax to the tip, and the black bands are quite small. The yellow was more of an orange, like that of the Cyprian, though without admixture of Cyprian blood.

The bee-cellar was well contrived, with top and sub-earth ventilation. The floor is occasionally sprinkled with sawdust, to keep down damp, and the entrance is closed by three doors, one within the other, so as to form dead-air spaces, thus securing a mild even temperature.

Boston, Mass. H. STEPHENSON.

Perhaps I should explain, that, although friend Stephenson writes from Boston, Mass., his present residence is in England. He has, however, been living for some time in Charlamont, Bedford Co., Va.—The plaster dies alluded to have been frequently mentioned in GLEANINGS, as our older readers will remember. My impression is, that they are not much used now.—In regard to the five yellow bands, I think friend Stephenson must refer to the downy fur or covering. I have never seen more than three distinct yellow bands, as we define them in the A B C book. It is also my impression that friend Doolittle had decided to use his sub-earth ventilators, either very little or none at all. Will he tell us about it?

WINTERING BEES.

HAVING AN EMPTY AIR-SPACE BELOW THE BROOD-COMBS, ETC.

ONE of the most important requisites for wintering bees in the North is the proper temperature. We have to observe, that the temperature of the air surrounding the cluster only has any effect in this respect. This is many times overlooked. We may have in a cellar a comparatively low temperature; but inside of the hive the temperature may be just right, if no or very little ventilation is allowed. Another time the cellar may be much warmer; but by full ventilation of the hives the temperature inside of them may be too low nevertheless; so if we want to find out the proper temperature for the bees, we should always speak of the air surrounding the cluster, to get comparable results.

In fact, I do not know what is the best temperature here. What I could say would be guesswork only; but I know that some hives are of such a construction that this best temperature is always secured automatically, and this for many hundred years. The reader may be astonished, but it is as true as it is simple.

If we keep our bees in a shallow chamber just as large as it is necessary for the colony, and not larger, packed as warm and as tight as possible, and give no ventilation above, the temperature of the air in this chamber will soon get warm enough by the consumption of honey, the entrance to this chamber being just under the cluster of the bees. Under this chamber and under the entrance is a second chamber, not quite as large, but empty. A similar arrangement is known here in the United States as downward ventilation, except that, usually, the entrance is on the bottom of the lower empty chamber; but this difference is important. We will suppose, now, by the breathing of the bees the temperature of the air surrounding the cluster will get warmer; the warm air will always rise, and so the upper chamber will get warmer by and by. The entrance is open, and so if the air in the lower chamber gets warmer than the outside air, it will pour out by the entrance, and cool air will get in till the air in this lower chamber has nearly the same temperature as the outside air. The bees are entirely quiet, so long as the temperature is correct. Now, if the temperature in the upper chamber gets too warm, the bees commence to extend the cluster, and consequently are moving. This causes some disturbance of the air, and cold and fresh air from below is mixed with the warm and impure air from above, and so the proper temperature and ventilation are secured again. The air in the lower chamber is somewhat warmer now than before,

and will pour out again by the entrance, and the lower temperature in the lower chamber is secured again.

But this arrangement has some other advantages. By this ventilation, some air, but not more than is necessary, will leave the hive, and with it a part of the water, breathed out by the bees, will go away. If any water will condense, it will be always where cold and warm air meet; that is, near the entrance. The upper part of the hive will remain dry. The cluster of the bees is, if the upper chamber is not too high, always just above the entrance, and so the bees can, if necessary, have access to the condensed water here, and have dry winter quarters nevertheless.

In Poland bee-keeping has been a pursuit for many hundreds of years, and was very important some centuries ago. Many tons of honey and wax were exported every year. Here they used log gums with an entrance half of the height of the hive. In the fall, that part of the combs lower than the entrance was cut out, and so the condition just described was secured. This management may not seem very good, but winter losses were and are nearly unknown in that country, with very severe winters. In Russia it is the general opinion that no colony can be wintered by any other arrangement, either outdoors or in cellars or clamps.

In the province of Hanover, Germany, too, is an old kind of bee-keeping a pursuit. The bee-keepers of that country use a straw skep about 18 inches high, and the entrance is somewhat nearer the top than the bottom of the hive, and winter losses are very rare.

The modern bee-keepers of Germany use frames about 14 inches high. Some claim, as here in the United States for some years, that they are better than shallow frames for wintering. The entrance was at first on the bottom of the hive, and the results of wintering not very good. Since some years it is recommended, and now quite generally in use, to make the entrance about 6 inches above the bottom on the front, and not on the side of the hive, every one says that the bees winter much better in these hives than before.

It is surely correct, that the bees always adjust their winter quarters near and above the entrance, and so the winter quarters in these hives is in fact only 8 inches high, and not 14 inches, and the 6 inches under the entrance act like the empty chamber spoken of before.

We can easily secure all these advantages with the Simplicity hive. Just slip in, in the fall, a frame about 5 inches high, and the same size as the Simplicity, with the entrance cut in the upper edge, under the hive, and pack all as well as possible, of course leaving the entrance open, but nothing else. This will do for outdoor wintering, if a board is leaned against the entrance to keep out winds. In a very cold climate, cellar wintering is surely preferable; but if the cellar is not very warm, or the temperature is inclined to change, it is advisable to use a similar arrangement; but packing, I think, will not be necessary. Very probably it will be simplest to nail this frame firmly to the bottom-board, and use this in winter, set upside down. I will not say that, by this arrangement, only good wintering is secured, but it is advisable, because many requisites for good wintering are secured automatically.

It is too late to try this arrangement for this winter; but I should be glad if some bee-keepers would try it next year, and report in GLEANINGS the result, with all the other circumstances.

Selma, Tex., Nov. 1, 1889. L. STACHELHAUSEN.

Friend S., your arrangement is by no means new. Our older readers well remember that the same thing has been recommended at different times for fifteen or twenty years back. The old original American hive was made with auger-hole entrances just half way up. The Simplicity hive has been used for wintering by turning the bottom-board upside down. This, however, gives only a two-inch space below the combs. Dr. Miller mentioned it at the Chicago convention, and I believe his hives are all arranged during this present winter to have a considerable space below the combs. One advantage you did not mention is, that dead bees, and dust and other debris, fall down below the entrance so as to be in no danger of clogging it. There is a division among the brethren, however, in regard to having the hive above the brood-nest made air-tight, or as nearly as may be. Some of our friends claim that bees will winter in an inverted glass jar, perfectly well, provided the mouth be of a good size, say like that of a candy-jar, and be left open. I do not know that this has been tested by actual experiment, but I think very likely it is true; and if so, no doubt the bees would winter with a better economy of stores than by almost any other arrangement.

MANUM IN THE APIARY WITH HIS MEN.

SOME VERY PRACTICAL DIRECTIONS FOR PREPARING COMB HONEY FOR MARKET.

August 7.—"Well, Ed, here we are home again. Fred, you may hitch up another horse after dinner, and go after Scott. I expect Leslie to come from his yard to-night by stage, then the boys will all be home again from their yards.

"Hello! there is Scott now. How under the sun did you get here, Scott? Fred was just going after you."

"Well, Mr. M., you told me, the last time you were at my yard, that you would probably send for me to-day; and as I got my work all done at about 9 o'clock I thought I'd rather walk home than to wait there with nothing to do. I have walked five miles many a time.

"Hello, Scott!" say Ed, Fred, and Will; and here they have a general hand-shake all around.

Scott inquires:

"Where is Leslie?"

"Oh! he will be here to-night, I suppose."

"Well, then, boys," says Scott, "what hinders our having a bee-convention all to ourselves, this evening, as I understand some of you go to your homes to-morrow?"

"Yes! yes! yes!" all cry out; "say we do."

In the evening all gather in the sitting-room for a general good time, and the time was well improved, as each related his experience during the past eight or nine weeks; and as the boys all go to their respective homes in the morning except Scott

and Leslie, many promises are made to keep up the friendship between each one by way of correspondence.

AUGUST 8.

"Now, boys, we are left alone—four of us—to prepare the honey for market; but as the crop is a rather light one we shall have a short job of it. I have already four women scraping sections, and another one coming to-day. Scott, you may nail crates together, and Leslie will stencil the ends and stamp wood sides, and wait on the women while I grade the honey; and Fred will crate and weigh it, so each will have his special part to do.

"Good morning, Mrs. F. I suppose you have come to help us in this work, so I will give you a few instructions to start with. You will occupy this corner of this long table. As there is ample room for six persons to work around it you will have one-third of one side. In this largest pile are the sections of honey that have not been scraped. All are in clamps, just as they came from the apiaries, 16 sections to each clamp. Now, you take one of these clamps and set it on the table at your right hand. At your left hand you have an empty clamp, all clean, into which you set each section after it is scraped. Here is a knife to work with. This is a common potato-knife, such as many housekeepers use for paring potatoes, apples, etc. This knife will require sharpening often, as it needs to be sharp to do the work well; therefore, whenever you want it sharpened you can call on Leslie, as he is supposed to render you ladies any assistance you may require. The first thing to do is to turn back the screw at the end of the clamp, here, which holds the sections snugly in place. With your right hand, take a section of honey, thus, and set it on the table before you, and with the knife scrape all the propolis from off the top, then from the edges of the section, and then from the bottom. Be sure to get it all off, so that the section will look white and clean. You will need to be very careful, and not stick the point of the knife (nor your fingers) into the honey; and if you should, do not put that section with the others, as the honey will run out and soil the sections under it. But you can set it in that large tin tray over there, made for that purpose. There, that section is scraped just as I want them all. It is now set in this empty clamp; and when you have it full, turn up the screw and carry the honey into the crating and grading room; then take the clamp you have just emptied, and scrape off all the propolis from that as well as the separators, although you are not supposed to remove the stain, but simply that portion which would cause them to be sticky. There, now you can take the knife and try your hand at it. There! you have punched your finger into the first one. Well, never mind. I will set this section over a colony of bees for them to take up the dripping honey, which they will do very quickly; but that section will now have to go in with the No. 2 honey."

Mrs. F. says:

"I will pay for that, Mr. M."

"Oh, no! I never ask my girls to pay for any broken honey. I simply ask them to be careful. You were not so much to blame in this case, after all, as you were a little nervous, owing to my standing here, looking at you; but you will soon get accustomed to handling honey, and then you won't mind it. And now since you are so willing to pay for this box, I will make you a present of it, and perhaps that will impress upon your mind the importance of being careful.

"Why! how do you do, Mr. T.? Walk right in, if you are not afraid of these ladies, though I judge you have always been a little shy of the opposite sex, for here you are, past middle age, and the indications are that you have never dared to pop the question; but I will say no more about that before these ladies. Well, how have the bees done with you this season?"

Mr. T. says:

"Not very well, I assure you. My crop is a light one; but, you know, I don't fuss with them much. I have only 25 colonies, and it won't pay to spend much time with them. But I have a little honey, and I have come here to learn how to fix it for market, and then I want to send it with yours, if you are willing I should."

"Certainly you can do so. I will now show you how we prepare the different grades for market. In the first place, the honey is all hauled here from the out-apiaries, and stored here in this large room, which is, as you see, well ventilated. Here it remains until prepared for market. In this middle room the sections are all nicely cleaned by scraping off all the propolis. It is then stored in this other room, where I grade it. This work I do myself, making four grades. Thus, No. 1 is that which is very white, and well filled and nicely capped. I mark this *Snowflake*. No. 2 is the next best, which includes all well-filled sections of white honey. This is marked *Choice Clover*. The next grade is partly filled sections, such as are not wholly capped. This is marked *Light Weight*, and the fourth grade is whatever dark honey I have. We usually get a little sumac and daisy honey. Although not very dark, yet it is too dark to be classed as white honey. This I mark *Comb Honey*.

"After the honey is graded, the No. 1, or Snowflake, is put into paper cartons, and all the other grades are put up with wood sides, which are stamped to represent each grade."

Mr. T. asks:

"How do you like the paper cartons?"

"Well, if we can get a cent a pound more by using them, it will just about even up the extra cost between cartons and wood sides; and what we get over one cent is clear gain in favor of cartons; therefore as yet I use cartons only for a *fancy* grade of honey."

"I see your shipping-crates all hold 20 sections. Do you prefer that size to smaller crates?"

"Yes, I do. I have used crates holding 12 and 16 sections, but now I use crates holding 20 sections all together, for the reason that my honey does not bring more or sell any quicker in small than in large crates; and as the 20-lb. crates do not cost any more than those holding only 12 lbs., it is, of course, cheaper for me to use the large ones, and then it saves the bother of having so many sizes."

"Do you aim to have every crate hold just 20 lbs?"

"Oh, no! we can't do that very well. Just come out here where Fred is crating and weighing. There, you see there is a pile marked 18 lbs., and there is one marked 18½, and there is one 19, and one 19½, and that last is 20 lbs. We don't have any over 20 lbs., as the dealers do not like to have them weigh over a pound to the section, and they prefer to have the crates weigh a little less; 19 lbs. net is about right to suit the dealers. We aim to have as

few fractions as possible. Were you to weigh this honey now, you would find nearly every crate would overrun from 2 to 4 ounces, as I set my scales so that, when the bar is just half way up it will give 2 ounces overweight; and when the bar is up, as it usually is, it overruns even the 2 ounces. This is done to allow for shrinkage in case I hold the honey any length of time. Now, in your case, Mr. T., as you have only 25 colonies, and, as you say, about 800 lbs. of honey, it will be necessary for you to make but one grade, as you can doubtless sell at home all the imperfectly filled sections as well as what dark honey you may have."

"Well, Mr. M., I am very much obliged for the information you have given me, for surely I have learned something here to-day about preparing honey for market."

Bristol, Vt. A. E. MANUM.

There, old friend, you have given us one of the most practical and valuable talks that have yet come from your pen. In fact, you have given us little glimpses that indicate why you can not only manage out-apiaries, but you also let us into the secret of managing your fellow men and women, and finding them work. Nothing vexes me so much as to find that somebody has set an entirely new hand at work handling sections of honey, without previous instruction and drill. You may take an expert housekeeper, or a man of genius, and even though you may tell him what is wanted, he will almost certainly do as Mrs. F. did. I can imagine just how the poor woman felt. Had you not assured her that it was a small matter, in the kind and exceedingly careful way you did, she might have felt miserable all that whole day, and possibly have lain awake during the night. I know, because I have found out afterward how easily good, well-meaning people may have their feelings hurt. A new clerk in our office spilled some red ink, and it got on the edges of some new books. She supposed there was no remedy, and worried about it until she made herself almost sick. She, with others, thought the red ink would have to be scraped off in some way. When it was mentioned, one of the women in our bindery department instantly replied, "Why, bless your heart, that is the easiest thing to fix in the world. Put red ink *all over* the edges of the spattered books. See here." She then picked up some books that were *made* in just that way. The very anxiety to do every thing just right often results in making new hands nervous, and getting them into just such troubles. Where our old hands carelessly make expensive mistakes, we are in the habit of allowing them to pay for making it good—that is, if they prefer to do so. It sometimes helps them to be careful. But allowances must always be made for novices. Perhaps you will never know how much you lightened the heart of poor Mrs. F. by your very kind and *Christianlike* way of fixing the matter. I have heard of gilt-edged honey, friend M., but I do not know that I ever saw any "Snowflake." I am greatly in favor of making different grades—where the crop is large, even as many as four grades; then let your customer buy what he wants, and *get* what he *pays* for.

WHERE SHALL WE FURNISH OUR CHILDREN RECREATION, ETC.?

AT HOME OR IN READING-ROOMS.

MR. EDITOR:—Friend Terry's article, headed "Our Homes," has occupied my mind much of the time since I read it; but I must confess that I differ greatly with its author. I've been a resident of this city rather more than half a century, and I've paid some attention to how the boys and girls of my time turned out; and it is a great pleasure now to spend a day with one of my schoolmates and talk of old times, and make inquiries with reference to the success in life of those whom we knew in childhood days. During these visits, how often I've been addressed in this way:

"Lucinda, doesn't it surprise you, the way the boys of wealthy families that used to go to school with us have turned out? Some died in early life, drunkards; others in the poorhouse; while an occasional ne'er-do-well is supported by relatives."

These boys had warm, well-lighted, cheery homes, with books and papers in abundance; but it didn't save them from wasted lives. How different were the surroundings of Abraham Lincoln, sitting in a log cabin before an open log fire, trying to solve the mysteries of a spelling-book; burning on one side and freezing on the other! The boys of the poor bent-wood sawyer, who carried his saw-horse from door to door, are the successful business men of Peoria to-day; and I remember a poor widow who daily bent over the wash-tub to support her three little boys. She lives in affluence now, for they occupy positions of trust and emolument, and do not forget their self-sacrificing mother.

Boys are not *moths*. They are not attracted by light and heat; that is not what attracts them to saloons, nor drink either. They want some place where they can work off their surplus spirits, and not be reprimanded continually. Freedom is what they will have. Girls do not need reading-rooms, for they have something to do They can not get time enough to do half they want to. They are continually seeing some article of adornment which they want to make.

Now, in some of these towns where there are saloons, suppose there should be a free reading-room opened, well lighted and warmed, and furnished with easy-chairs, the latest books and papers; and near by, another large shop, furnished with work-benches, tools, vises, lathe, etc., with piles of brick and mortar, and the boys told, "Now you are free to go to either place, and use all there is there." Where would you expect to find the most boys?

Now, in fancy let us listen at the keyhole of such a building, during one of our long winter nights.

"Tom, what are you going to make?"

"I am going to make a sled, so as to be ready for coasting—a big long one to hold a dozen. Won't it be jolly, though?"

"Oh fie! I'm going to make a toboggan. Charlie, what are you trying to do?"

"Make mother a mush-stick."

"Oh! an't I glad of that brick and mortar? I'm going to build an arch, and see if I can't stand upon top of it; and if not, fall in. I heard father say, that the reason the vault fell in at the cemetery was because it was not keyed, and I've wanted to try on one ever since. Don't you know what a time the jury had over it? couldn't agree; and when the

judge dismissed them he said: 'If it was a good job, and well done, why did it fall in?'"

"Well, Bill, while you are building an arch, I'm going to try on a chimney, for ours always smokes."

I have often said, that the prettiest thing I ever saw was a little boy, and I've had the genus, from time to time during the last thirty years, in my family, so I claim to know something of their characteristics. I've had four different boys, in periods lasting from two to seven years, and only one of them could I interest in books to any extent, let me charm never so wisely. One little German boy could hitch up my horse, and drive around to the front door, when he was so small that he had to climb into the feeding-box to put on the bridle; but learn to read, he could not. When he had learned one lesson, he had forgotten the one that went before. But he never forgot the place for any thing, nor to put it back when he used it.

While reading Our Homes, that little couplet came into my mind so often:

Little boats should keep near shore,
While larger boats may venture more.

We live in an extravagant age; persons live in larger houses, burn more coal and light than their incomes justify, as one expenditure leads to another. Mr. Terry, in reckoning up the expense of warming and lighting three rooms, has forgotten several accounts. It is more work to refill and clean three lamps than one; to sweep and dust three rooms than one. In the spring there will be three rooms smoked up to be renovated. Can not one room be ventilated as well as three? Will that mother's health be benefited by caring for three rooms in lieu of one? Fathers and mothers are now overworked by reason of useless expenditure; fathers distracted at the round-up at the close of the year, because their accounts will not balance. Bee-keepers for three years have had poor crops; but I hope they can say, "I owe no man a dollar."

Peoria, Ill. MRS. L. HARRISON.

Why, my good friend, I do not understand that you differ so very much from friend Terry after all. He and I were not discussing the children of *wealthy* parents—that is, we did not have them particularly in mind. When we consider that particular class of boys and girls, I think we very nearly if not quite agree with you. Abraham Lincoln did not need the encouragement of a pleasant room, abundant light, and modern comforts; but had he been supplied with them, I am inclined to think he would have made a great and good man, even then. If this were not so, it would be a very sad comment indeed, not only on the boys and girls, but on humanity in general. We all know, I suppose, that it is chiefly the boys from the farm that supply the material for our great merchants and manufacturers in the cities; but these same merchants often go back to farm life again when they are able to do so. Your idea of a sort of industrial school, I grant, is a grand one; but did it not occur to you, dear friend, that the Home of the Honey-bees is almost exactly such an institution, except that we keep the boys and girls at work all day long, and pay them wages, from five cents an hour up? I have tried some experiments strikingly like the one you suggest. The great difficulty is, that these boys spoil lumber, spoil tools, and make such a chaos of the brick and mortar that it would require a lot of money to clean up and make good what is lost and damaged. Very likely you will say they must be taught to clear up and put away things in as good order as they find them. There is a youngster over at our house who is going through this very drill. Sometimes it is like pulling teeth to make him put up his tools and playthings after he tumbles them all over the floor. But mamma holds him to it, and now he is beginning to be a little backward about scattering things to such an extent that it will take him quite a spell to gather them up. His hobby just now is ovens. These ovens he constructs of brick and mortar, in the back yard. He has asked me more questions already about ovens, arches, clay and mortar that will stand rain, etc., than I can answer without consulting a mason. In our juvenile department of the public schools of Medina we have one teacher who is a gem in her line, and her schoolroom is sometimes pretty well filled with sticks, cards, boards, and other machinery, to induce children to build and exercise their ingenuity when their bent seems to lie in that direction rather than books. It seems to me that these youngsters need a kind teacher, or mamma, pretty much all the time. Of course, our boy Huber builds his ovens just as he pleases, and has unlimited liberty for hours at a time; but mamma glances over her spectacles now and then, in the direction of where he is working, to see that he is protected from catching cold, or is not straying away, etc. Now, I am sure that you and friend Terry are pretty nearly in a line in your desire to have the children grow up in wisdom, godliness, and purity. Is not the home the very best place to bring it about, or say, in close proximity to said home—the back yard for building ovens, the front yard for croquet and other games?

SENDING HALF A POUND OF BEES BY MAIL.

FRIEND PRATT STILL THINKS IT PRACTICABLE.

ABOUT bees by the half-pound by mail, let me say that I have given the matter considerable thought, and I have a plan whereby it will be perfectly safe to send half a pound of bees with a queen, by mail. The cage should be made of some tough light wood, about the thickness of section-box wood, three-cornered in shape, with braces across the grain the full length of the cup. The corners could be dovetailed, glued, and nailed. By having thinner partitions than I put into the one sent to Mr. Doolittle, six of them could be used. The candy could be ground in a paint-mill, as you suggested. After the bees have been put in, and sealed up as tight as possible, the whole thing could be slipped into a stout porous sack, made the correct size to hold the cage loosely, after which stitch up the opening with strong twine; tie on a tag, and mail it. By way of experiment I went through the process as above, to see how much the cage could stand. I have not succeeded in breaking it yet, but I think I could with a sledge-hammer. E. L. PRATT.

Marlboro, Mass.

No doubt all you say, friend Pratt, is true. The time *may be* when we shall be sending

bees in half-pound lots by mail; and while we do not wish to discourage progressive ideas, we should, at least for the present, be very careful and not forfeit the privilege we now have, of sending a queen and a dozen or so attendants for one or two cents postage. There is not a bit of doubt but that *you* can make a cage light enough for one-half pound of bees, that will stand all kinds of rough usage through the mail-bags; but the point is, will *every one* be as careful? While *you* may have ingenuity and mechanical skill enough there are a hundred others who do not. If further steps are taken, do not try the experiment again without *first* obtaining permission from the proper postal authorities. As the law stands now, half a pound of bees is *not* admissible—at least if the *intention* and spirit of the law is considered. Just see what has happened within the last two months, and think what might have been the result with half a pound of bees! The following is an editorial on the subject, from the *Canadian Bee Journal*, page 881:

SENDING BEES BY THE POUND BY MAIL.

Not two months ago we were the recipients of some most beautifully pathetic language at the hands of the railway mail clerks on our local line of railway. And their language was plentifully seasoned with "cuss-words" too. Do you all want to hear why? Simply because half a dozen little bees escaped out of a broken queen-cage, sent from this office, and walked over the backs of the hands of the mail clerks, with their hot little feet, just half a dozen! But the edict went forth, that if such a thing occurred again the heads of the postoffice department should hear of it, and we all know about what we would have to look for then. Think, then, for a moment of our chances if a whole pound should get loose and roll out of a sack, and turn in and help distribute the mail. Our advice is, "Don't fool with edged tools," but discourage the practice in others every possible chance.

A CALIFORNIA APIARIAN EXHIBIT.

FRIEND MERCER GIVES US A GLIMPSE OF A CALIFORNIA HONEY-SHOW.

FRIEND ROOT:—I send you, by this mail, a photo of the exhibit that we had at the District Fair at Los Angeles, Sept. 23 to 30, 1889. You will probably recognize all of the faces in the picture. Mr. W. W. Bliss is the first one on the left. That next fellow, whose head looks as round as a pumpkin—well, that's your humble servant, and the next is the other half. The fourth one is my son Edward. We tried hard to get friend Wilson in the photo, but he was on the fly so all day that our artist could not catch him.

L. E. MERCER'S EXHIBIT AT VENTURA, CALIFORNIA.

To begin again, on the left of the picture the first is the column that supports the upper part of the booth. These columns are all wrapped with foundation, which gives them the appearance of wax columns. Next to the columns is a cake of beeswax, about 3 inches thick, 3 feet wide, and 4 feet high. The spot on the edge is one of your $1000 reward cards. Everybody wanted the reward, but failed to find the proof. Next behind the flag is a one-frame glass case of bees that built five good queen-cells while in the case at the fair, with people handling the case continually from morning until ten and eleven o'clock at night.

Next, and outside of the curtain, is a common L. hive such as we all use in Ventura Co., except that it has on it a T super. On top of the T super is a 24-lb. case of comb honey, and on top of the honey

is an 8-frame glass hive, with T super; also glass, with glass over the top of the super. This hive rests on a pivot, as do all the others that have bees in them, so that they are easily turned around for examination. This large hive attracted a great deal of attention, as it was all glass except the corner posts and a small strip at top and bottom. We had a feeder in the super, and kept the bees at work. You can see on the side of the super, where they built the comb to the glass after we took the hive into the pavilion. Back of the hive you will recognize the Given press. Hanging to the upper curtain is a queen-nursery, frame of foundation, drone-trap, strips of perforated zinc from Dr. Tinker; also some zinc honey-boards from A. I. Root. A number of cases of honey show just back of the bee-books and smokers. To the left of where I stand is a glass case of bees—an L. frame of bees and queen is the lower part, with five queens in the upper part. The small case in front of me contains the queen that took the prize. You can see the ribbon on top of the case. The object that appears to be between my wife and me is a wire cage of honey. At the right of Ed is a ten-pound case of honey, which has also a ribbon on it, $10 premium for 10 pounds of honey. The sign at the lower right-hand corner is on the side of one of our six-frame Perfection extractors. The white pyramid at the corner does not belong to my exhibit. It is a pyramid of sacks of flour, about 14 feet square at the bottom, and about 20 feet high. The frame in the foreground is the property of Mr. Bliss. It is a fine frame of foundation.

The Agricultural Association offered in premiums to bee-keepers about $100, 61 of which was awarded to your humble correspondent. The following is the list:

Best swarm of bees, Mercer & Son, Ventura; first premium, $8.
Second best swarm of bees, C. N. Wilson, Los Angeles; premium, $3
Best queen-bee, Mercer & Son, Ventura; first premium, $3.
Second best queen-bee, C. N. Wilson, Los Angeles; premium, $1.50.
Best 10 pounds comb honey, Mercer & Son, Ventura; first premium, $10.
Best 10 pounds extracted honey, C. N. Wilson, Los Angeles; premium, $10.
Best 10 pounds beeswax, C. N. Wilson, Los Angeles; premium, $5.
Best and largest display of honey, both comb and extracted, Mercer & Son, Ventura; premium, diploma, and $15.
Best made hive and section boxes, C. N. Wilson, Los Angeles; diploma, and $10.
Best comb foundation, W. W. Bliss, Duarte; premium, diploma, and $5.
Best comb-foundation machine, Mercer & Son, Ventura; diploma.
Best comb extractor, Mercer & Son, diploma.
Best tank, Mercer & Son, diploma.
Best display of agricultural implements, Mercer & Son, diploma.
Best miniature apiary in operation, Mercer & Son; premium, $25.

The Los Angeles *Times* says our bee show was the center of attraction in the great pavilion. It is really surprising to see how little some people know about bees. Several ladies asked my wife what kind of bugs we had in those glass cases. Others would ask what kind of wood that was, meaning the larger pieces of beeswax. We had on exhibition one of your Dovetailed hives, also our common L. hive with T supers, that is in general use in Ventura Co, but somehow the committee saw fit to give the premium to a sort of revised edition of the old Harbison hive and section—a hive and section that is at least ten years behind the times. L. E. MERCER.

San Buena Ventura, Cal., Oct. 12, 1889.

Well done, friend M. The picture of yourself and wife and son makes me feel as if I were back again in your beautiful country. The arrangement will be helpful to others getting up similar exhibits. Friend Bliss has got so far in the background that I should hardly recognize him unless somebody were to tell me whom to look for. So the story about manufactured comb honey is current away off in California as well as about here.

THE PREVENTION OF BRACE-COMBS.

POSITIVE TESTIMONY AS TO THE VALUE OF THICK TOP-BARS, FROM SEVERAL SOURCES.

Since Dr. Miller's initial article appeared on the subject as above, on page 889, Nov. 15, already several communications have come in. While at the International Convention in Brantford, I met our genial friend J. B. Hall, of Woodstock, Ontario. He is that bright Canuck referred to by Dr. Miller, and who, I believe, first suggested the value of thick top-bars. I asked Mr. Hall if he would write us an article on the subject. Said he, straightening up to his full height, and in his Scotch accent, "I wouldn't write an article for twenty dollars; but I will answer here all the questions you may ask."

It seems that he uses a long Quinby frame that is longer than the regular Quinby. With such a large frame, a top-bar with ordinary thickness would hardly be strong enough to hold the weight of honey, and so he had them made ⅞ inch thick. Quite accidentally they were an inch wide. After they had been used he noticed that there were no brace-combs built above them. He did not know why this was so, unless it was because of the extra thickness of the top-bar. When he made his top-bars thicker (not for doing away with brace-combs, but for strengthening the frame), little did he realize that he was quite accidentally blundering on to a most valuable (as it seems to me) discovery.

Now, then, we will let the rest talk. The first is from the pen of Mr. W. S. Adams, who writes in this practical style:

COMPARATIVE EXPERIMENTS WITH THICK AND THIN TOP-BARS, WITH THE RESULT IN FAVOR OF THE THICK BARS EVERY TIME.

Mr. Root:—For the information of Dr. Miller, and others interested in the thickness of top bars as a preventive of burr-combs, I would say that a series of experiments during the two last years with me proves their feasibility. I give this year's experiments. I work entirely for comb honey, and use the Simplicity frame, and contract to seven frames during the honey-flow. In experiment No. 1, one hive contained 4 regulation frames, and 3 with top-bars one inch thick, with a narrow honey-board over the regulation frames to bring them flush with the others. In experiment No. 2 I alternated thick and thin top-bars, eight frames to the hive, thin top-bars double, having a ⅜ block at each end, with a ¼-inch strip tacked on to bring them all flush. In experiment No. 3, four hives were selected, with 7

frames in each, and the top-bars were one inch thick. All my bars are ⅞ wide. The rest of the apiary had the regulation top-bars, with honey-boards of various designs.

Result: In experiment No. 1, the narrow honey-board was badly glued to the frames, and slightly stuck to the T case; but it was perfectly free over the thick top-bar frames, and the frames themselves were as clean as when first put in. In experiment No. 2 there were no burr-combs on top of the frames, but comb between some of the slats over their frames. In experiment No. 3, on the first hive I placed a T super directly on the frames. On the second hive I used the Heddon case. On the remaining two I used brood-frames. There was not a vestige of *comb* on top of the frames of any of them, and only a trace of propolis. This occurred after the season was over. The first time I took off honey they were bright and clean. The experiments were conducted with black bees. My blacks beat the Italians badly on white clover, while Italians led on the fall flowers. WM. S. ADAMS.

Guys, Md., Dec. 5, 1889.

Again, our friend C. G. Looft adds his testimony as follows:

THICK TOP-BARS AND NO BURR-COMBS; POSITIVE TESTIMONY IN FAVOR OF THEM.

Reading Dr. Miller's article in GLEANINGS, Nov. 15, relating to the width and thickness of top-bars, and the fact that considerable interest in them is being manifested, and that information regarding this subject seems to be quite welcome, induced me to arrange a few facts out of my experience with brood-frames which have top-bars of this kind. It is quite a wonder to me, in view of the length of time that this matter has been before the bee-keeping public, that so few of the best writers on apiculture have not tried frames with such top-bars before this, and so be able from actual experience to give absolute information about the main quality claimed for them—that of preventing the building of brace-combs over top-bars. True, Mr. Alley, in his usual vigorous style, has been claiming for some time that the honey-board is of no use; and Mr. Bingham, who has used thick top-bars for years, says the same thing; and it strikes me that he is the man who can give considerable information on this point.

To do away with the honey-boards, their cost of making, extra labor in handling, and to avoid the cleaning of brace-combs from them and the tops of the frames, which Dr. Miller says is no light job, is certainly very desirable, when, as in my experience, the building of brace-combs can be prevented in so simple a manner as making the top-bars thick enough up and down, and of the proper width.

I have in use a sort of modified Bingham frame, about six inches deep, end-bars 1⅜ inches wide, with Alley top-bars, which, as I make them, are 1 inch wide and ¾ inch thick. During the past year, in my locality, so far as brace-combs are concerned they have proven to be entirely satisfactory, there being no more trouble of brace-combs between the top of the brood-nest and queen-excluding honey-board than there is in the bee-space between two supers on the hive. I also have some frames about the depth of the regular Langstroth, which, so far as I can see, worked equally well. My brother, who uses a shallow frame like the one I use, makes his top-bars 1 inch wide by ⅞ inch thick, and will have no other. He rips them out of common ⅞-inch boards. For frames deeper than the Bingham, my preference is the thicker, or ⅞ bar.

Here it is proper to mention an interesting fact. In hiving new swarms I used queen-excluders; but my brother hived all his new swarms into these empty frames, without excluders, after having placed the supers from the parent colony upon them, yet in not a single instance was there any brood reared in the supers. Whether this was caused by the form of the frames or of the super, I am unable to say. It is important that the width of the top-bars be in proportion to the distance that the frames are spaced apart from center to center. Extreme width is undesirable. In that case you would likely have the trouble of which Mr. Heddon complains, page 669; yet Mr. Kildow, page 632, reports a success with only $\frac{3}{16}$-inch space between the frames, while Mr. Root's experience, as stated in his foot-note to Mr. Kildow's letter, was about the same as Mr. Heddon's.

It seems to me the whole essence of the thing lies in having top-bars thick enough, and spaced the regular bee-space apart; for is it not reasonable to suppose that the same bee-space which so nicely prevents brace-combs being built between two supers tiered above each other would also prevent their being built between thick top-bars? and when they are not built between them there are none built over them. Any one, of course, can test these statements for himself; and I will say to those who should test the arrangement just mentioned, and it should work as well as it has in my locality, there can be no doubt of their being entirely satisfied with the results. C. G. LOOFT.

Forest, O., Dec. 5.

F. L. Smith says:

HONEY-BOARDS AND BRACE-COMBS; HOW TO DO AWAY WITH BOTH.

Allow me to reply to Dr. Miller's article on the topic as above in GLEANINGS, Nov. 15, page 888. On the following page the doctor is anxious to know whether thick top-bars will allow him to dispense with honey-boards entirely. My experience with thick top-bars is limited to half a dozen hives. I found no brace-combs; but at the beginning of the next season I transferred combs and brood into three-eighths-inch top-bar. My objections were, the inch-thick top-bar brought my sections too far from the brood, and I found the bees did not enter sections as readily as they did with ⅜-inch top-bar; and in the production of comb honey I consider it of the utmost importance to bring the sections *down* as near the brood as possible. As to using a honey-board, I have always considered them an expensive incumbrance. I have never found it necessary to use one of any kind, not even a queen-excluding one. The inventors of honey-boards claim they will prevent brace-combs; but according to Dr. Miller's experience they do not entirely.

There is a method to prevent brace-combs, without the use of thick top-bars or honey-board, and I wish to emphasize it very strongly. It is simply by properly adjusting frames and supers. To prevent brace-combs, let us first ascertain why they are built.

My answer is, to fill unrequired space. Contract that space to the actual requirements of bees, and we shall find no brace-combs, which can be proved by any practical apiarist by experiment. To illustrate: Place the super so there shall be an inch

space between the top-bar and bottom of the section, and a fine lot of brace-combs is the result. Now remove the brace-combs from the top-bars, bring the super down to within ¼ inch of top-bar, and I have yet to find the first brace-comb.

There is still another point of equal importance with adjusting supers, that must be managed in connection with it in order to insure complete success; that is, in properly adjusting the frames; for I consider that just as much depends upon the latter being properly spaced as does the super being brought *down* to the required distance, for brace-combs are almost invariably started on the side of the top-bar, and for no other reason than the one above given—too much space. Mr. J. E. Pond, several years ago, wrote an article in regard to crowding frames closer together in order to compel bees to enter sections more readily. I considered the idea of so much importance that I spaced my frames in all new hives scant 1⅜ inches from center to center. At the close of the season I found the result was more than Mr. Pond had claimed. I not only succeeded in inducing my bees to enter sections more readily, but I found far less brace-combs than on any other hives. Whenever any were found, the cause was quite apparent — too much space existed between the top-bar and bottom of section. Following up that idea the next season, I brought my supers *down* so there was scant ⅜ space between the top-bar and sections. At the close of that, the second season with the new method of contracting frames, I was satisfied I had a preventive for brace-combs.

Now, in regard to the best width for a top-bar: All things considered, I think the one-inch wide is preferable. It allows a little more stores for winter underneath than the ⅞. When we have the inch-wide bar spaced 1⅜ from center to center, we have taken the first step toward preventing the building of brace-combs; and by bringing supers *down* so there shall be scant ⅜ space between the top-bar and bottom of section, we have the whole matter of preventing brace-combs under our control.

Chittenango, N. Y., Dec. 6, 1889. F. L. SMITH.

S. A. Shuck writes:

THICK TOP-BARS PREFERRED; THEY PREVENT BRACE-COMBS, AND WHY.

I wish to offer a few thoughts concerning heavy top-bars. About nine years ago I purchased 200 all-wood brood-frames of A. I. Root. These were, I thought, very light; and with what I had of my own make they gave me frames enough for 50 colonies. In 1882 I made about 700 more frames. These were like my former make, top-bars ⅞ wide by ½ inch thick.

The season of 1882 was a good one; and when fall came I was completely disgusted with light top-bars for brood-comb. The light top-bars had sagged, in many instances, from ¼ to ⅜ of an inch; and the bees, in their efforts to even up matters, had poked bits of wax "all over" them.

I have nearly all of these frames yet; and although I have scraped the wax off from them from year to year I have not become reconciled to them. In the mean time I have made several hives with top-bars one inch, and some 1⅛ inches wide; and so long as these wide top-bars were kept all in the same hives, and properly spaced, and the space above the frames kept at ⅜, or a very little less than ⅜ inch, there has been no trouble with brace-combs. But just as soon as these frames were interchanged with those having ⅞-inch top-bars, or from any cause the space above the frames became too large or too small, the brace-combs appeared.

Dr. Miller says: "I wonder if it is not the simple matter of distance that prevents the bees from starting brace-combs." That is, undoubtedly, the sequel to the whole thing. And this, too, is the very reason that Heddon and others place so much stress on *exact* measurements and distances.

DISPENSING WITH HONEY-BOARDS AND BRACE-COMBS.

During the past season I have used T supers on about 20 hives without honey-boards. The top-bars in these hives are ⅞ inch thick by 1⅛ inches wide. There were no brace-combs built between or on top of these frames this season; and I feel confident that, so long as the proper distances are maintained between frames and between tops of frames and supers, no more brace-combs appear than will appear between supers and the upper surface of queen-excluders.

As for distance of sections from brood-chamber, let us reckon a little. With top-bar ⅜-inch, space between top-bar and queen-excluding slat-zinc or break-joint honey-rack ⅜-inch, thickness of honey-rack ⅜ inch, space between honey-rack and section-case ⅜-inch, in all 1½ inches. With ⅞-inch-thick top-bar and ⅜-inch space between top-bar and section-case we have but 1¼ in.; and with all-zinc excluders it is only 1⅛ inches; so the best that can be done with ⅜-inch top-bars and all-zinc excluders, not allowing any thing for the thickness of the zinc, is only ⅛ inch less than with ⅞-inch top-bar and no honey-rack. It appears to me that ⅛ of an inch is not enough to make any appreciable difference in the amount of honey obtained, and but very little to boast of, if we take into consideration the frailty of frames with only ⅜-inch top-bar.

Liverpool, Ill., Nov. 21, 1889. S. A. SHUCK.

HENRY ALLEY AND BRACE-COMBS.

In the December number of the *Apiculturist*, page 183, I noticed the following paragraphs on the subject before us:

The Bay State bee-hive is one of the best in use, as no brace-combs are ever found between the sections and the top of the frames. Nor was a queen ever known to enter and deposit eggs in any of the sections, notwithstanding the fact that no slatted honey-board or other device is used to exclude the queen.

A hive which permits the bees to build brace-combs in any part of the brood-chamber is a nuisance in any apiary. Convert such hives into kindling-wood, as that is the most proper use to which to put them. If you have frames with a ⅞ top-bar, destroy them and adopt the wide top-bar, and thus take some comfort in keeping bees.

And again on the same page, in answer to a correspondent, Mr. Alley uses these words:

Where a ⅞-inch-wide top-bar is used, and the space between the top-bar and the sections is ⅜ of an inch, one needs a heavy bar with which to pry up the section-cases when they are to be removed from the hive.

Having a curiosity to know exactly what frame Mr. Alley uses, I next consulted his book—the "Bee-keeper's Handy-book." On page 84 I find this:

OBJECTION TO NARROW TOP-BARS.

The most serious objection to the narrow top-bar is the fact that the bees build the combs between the bars, and fasten them to the honey-board, bottom of the sections, or to whatever the frames are covered with. When this is the case it

is very difficult to remove the combs from a hive. Now, this can be mostly if not wholly obviated if wide top-bars are used; and as there is no reasonable objection to using such, I would strongly advise the novice to adopt them at the beginning.

On page 632, August 1, 1889, A. L. Kildow declares most emphatically for top-bars 1⅛ inches wide by ½ inch thick. He says: "I used this kind of frame last year, and this in about 80 colonies; and I have yet to find the *first bit of burr-comb* between. It brings the sections close to the brood-nest, and the bees are quick to enter them." Now, then, friends, you have the whole matter before you. The facts brought forward seem to be positive and convincing. If, indeed, further testimony should substantiate all that has been said above, then it would seem that honey-boards might better be dispensed with in all cases, except where it is desirable to exclude the queen from the supers; and even then, plain sheets of zinc could be used in place of the regular bee-spaced slatted honey-board. I first thought that the frames with thick top-bars, an inch or 1⅛ inches wide, would cost considerably more than our regular frames; but in talking with our foreman he informs me that they can be made for very nearly if not quite the same price as the ordinary regulation ⅞-inch-wide top-bars. But a question comes in right here that does not seem to be settled, and about which there does not seem to be an entire agreement of opinion: Is it necessary, if the top-bars are 1⅛ inches wide, that they be also ⅞ inch thick? Has experience demonstrated that the extra thickness and the extra width are both essential in the prevention of burr-combs? It may be argued, that the extra wood in the top-bar takes up comb space. But in answer it may be said that it more than offsets this by the prevention of *useless* burr-combs, and the consequent labor of removing them.

Now, then, as I said before, the testimony seems to be convincing; but experience teaches us that it is wise to go a little slow. Are there not some who have tried the extra-thick top-bars, coupled with the extra width, and found them a failure in the point at issue? Again, are there not others who can substantiate the facts already brought forward? This matter of the prevention of burr-combs, when it may be done so cheaply, I deem to be one of the most important subjects we can discuss; so let us have the truth, let it be for or against. ERNEST.

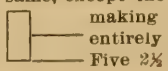
THE DOVETAILED HIVE.

IS THERE ANY DANGER FROM UNEQUAL SHRINKAGE OF SIDES OR END?

It seems to me just a little reckless to allow a new thing to become as prominent as has the new Dovetailed hive without its having been more thoroughly tried. It may be said, that there was nothing really new about it, only a new combination of old things. At any rate, it's too late now to stop it, and the only thing left is to discuss its merits or demerits with a view to retaining or changing any of its features, and to show up, if need be, any dangers that may arise in the making or using thereof. And I can't say a great deal about it, for I've only a few in use for a single season. The dovetail feature is perhaps the most striking thing about the hive, and that feature will, in some hands, secure the perfection of joints, and in others a failure. In these days, when every thing runs so much to specialties, this does not matter so much, for few will want to cut out the stuff for their own hives. I consider myself as good a mechanic as the majority of bee-keepers; but I would not undertake, with the tools of the average bee-keeper, to make a dovetailed hive-body satisfactory to myself for less than double the price charged by A. I. Root for the same body. To be at all satisfactory, the dovetails must be made with exceeding accuracy; and even after being made with the nice machinery friend Root uses, I should want to put my hives together just as soon as possible after receiving them, for I have no great faith in their remaining accurate a long time without being put together. It is practically impossible to get stuff to remain in this climate without shrinking or swelling; and the end of a hive will not shrink or swell with certainty exactly as the side; so if they shrink or swell unequally after being cut out, and before being put together, there will be trouble about getting the joints together, and considerable certainty of splitting. After all, that is not so great an objection, for the price of the ready-made article is so low that the average bee-keeper will not be tempted to cut out the stuff for himself, unless so far distant that freight-bills are prohibitory. In fact, one of the best features of the Dovetailed hive, as offered, is that it is a marvel of cheapness. After keeping hives years enough to throw some of them aside from old age, I have found one of the greatest difficulties is to have joints that will stay. Twenty years from now, if I should live so long, I can tell better about the dovetailed joint; but I feel pretty certain it is away ahead of any thing I have ever tried. Take the simplest kind of joint, one end of a board merely nailed on the end of another board, as in the common dry-goods box; and if enough nails are used it is about impossible for the board containing the points of the nails to warp, while no amount of nails will prevent the warping of the board containing the nail-heads. Now, in the case of the Dovetailed hive, *each* board at the joint contains nail-points. There may be just a little warping allowed at each outside tenon at the corner where the warping of the board tends to draw out the nail; but I think that can be entirely prevented by driving a two-inch nail, not in the same way as in the other tenons, but perpendicularly into the corner, so that no effort of the board to warp can draw the nail, but merely pull upon it sidewise. The peculiar cleat at the ends of the cover is a pretty thing in theory, but I don't like it in practice. It is so much easier to put in place quickly on the hive a perfectly flat surface. The cleat is grooved to let in the end of the cover thus: the idea being

that it will be held more firmly in place, and a single nail at the middle of the cleat will hold it secure, and at the same time allow the board to shrink and swell without causing the splitting that is supposed would take place if the cleat were nailed throughout.

For a few years I have used a cover which is the same, except the cleat, and I use the plain cleat,



making the under surface of the cover entirely flat, the cleat projecting above. Five 2½ or 3 inch wire nails driven into

the cleat hold the board secure against warping; and although my covers are not painted, I have as yet had no trouble from splitting. The grooved cleat will *sometimes* split, and then it is of little use. The plain cleat I think is stronger, and I like so much better the flat surface. For my use, the slotted hand-holes are not satisfactory to lift the hive by; and as it will be easy to add a cleat at each end to carry the hive by, I think I shall add them. After all I've said, the Dovetailed is the only hive I have ever seen that I like well enough to make me think of changing gradually—very gradually, however—from the hives I am using. C. C. MILLER.

Marengo, Ill., Nov. 18, 1889.

I know, friend Miller, that it would have been a little reckless to put out a new thing in the way the Dovetailed hive was, *providing* it had been new. As you intimate, there was really nothing new about it. It is not even a new combination of old things. With the exception of the dovetailed corner it is almost the identical hive that O. M. Blanton, of Greenville, Miss., uses—one, too, which has been sold by C. F. Muth for some time back, and it is also about as near the old-style Heddon hive as any thing can be, with the exception of the surplus arrangement and dovetailed corner. If these two hives, then, Heddon's and Blanton's, were a success, would it be dangerous to put forth the same thing with the dovetailed corner? The section-holder, I grant, is a little new to the bee-keeping public; but it was tested, nevertheless, before we ever thought of using it here. O. J. Hetherington, of East Saginaw, Mich., uses essentially the same thing, or at least he did do so, besides others whom I might mention. You say a few will want to cut the stuff for their own hives themselves. Very true; but they can never make the Dovetailed joint. That will have to be delegated to the supply-dealer, on account of the expensive machinery required. Any one desiring to make the Dovetailed hive would have to make the ordinary box or lap joint; and, of course, it will not be the Dovetailed hive, but a hive embodying its principles. Now as to the matter of unequal shrinkage and swelling of the sides or ends of the dovetailed corner. Very likely there *ought* to be a great deal of trouble from this source from a theoretical point of view; but *practically* there is little or none. We have sold, we estimate, 10,000 Dovetailed hives during the past season, and we can not remember to have had *a single complaint* that the bodies would not go together by reason of unequal shrinkage of sides or ends. Let me tell you why. Green pine lumber will shrink from $\frac{1}{4}$ to $\frac{3}{8}$ of an inch in a foot; but good weather-dried pine (such as we use in all our hives) will shrink or swell, under varying conditions, but a very small trifle. Now, all the Dovetailed hives we have nailed together in our establishment since we have had our machinery perfected would never at one side or end vary in width more than $\frac{1}{16}$ of an inch, and this only in rare cases; and even when it does do this, the man who nails up the hives says that the wood itself will yield so that the hives can be driven together without splitting; but in 99 cases out of 100, the sides or ends, if made from the same lumber, will not shrink unequally. All our Dovetailed hives are made of lumber that has been in the yard from eighteen months to two years; and if the hives have been made from the same lot, the unequal shrinkage or unequal swelling is inappreciable. Of course, if any one will take the pains to put the ends next to the stove, and the sides exposed to the damp weather, he might then experience trouble; but we should be assuming that he would do something that he would not be likely to do. Packing-boxes of small dimensions have been made for years, and we don't have any complaints made against them on account of unequal shrinkage. As to the cover, I don't know that I could quite agree. We have had one cover in the apiary, nailed in the way you state, and there was some warping. It is true, that a plain board can be slid on to a hive a little easier, but not enough easier, it seems to me, to make it of enough moment to warrant us in making a change. A cover-board slid into a grooved cleat, and nailed, is a *good deal less liable* to warp than one simply dependent upon *nails*, I think. However, time will decide which would be the better way. This is a point we can change, if future needs should demand it, and yet not interfere with the other parts of the hive. Now, doctor, I thank you for bringing up these points, not because it substantiates the superiority of the dovetailed corner, or the hive in particular, but because it gives me an opportunity to answer others who have doubtless raised similar questions in regard to the corner. ERNEST.

PACKAGES FOR EXTRACTED HONEY.

WHAT SELLS THE BEST.

IT seems to me the honey-producers should know more of the honey-trade as conducted in our cities. Who will tell us the most acceptable and economical package for retailing extracted honey in our large cities? If we run our honey into barrels we incur an expense that the consumer will bear no part of. I imagine that extracted honey must be in glass of some kind to retail well by the city grocer. It is the only way I can get the grocerymen to sell it for me in their stores, and it must be in a small one. Once they could sell extracted honey in tin pails holding from five to ten pounds, by making it about five cents lower than comb honey. But comb honey retails here in our groceries at 12½ cts., and I do not feel that I can profitably produce extracted at five cents less. I find on trial, that the small 1½-lb. glass pail filled with light-colored honey holds its own in the market here, sold at 25 cts., with 10 cts. paid for pail on its return. If I try to get 10 cts. per lb., and cost of the glass, I make it cost more than honey in the comb; and after a while my patrons feel that they have so many of the pails that they do not want to pay for any more. If honey-producers and honey-merchants could agree on a glass holding the right amount, one that looks well enough to set on the table as it came from the bee-keeper or the honey-man, it seems to me it would be much to our mutual advantage. If the retailer would allow the glass to be returned he

would cheapen the price so much it would add to the consumption very much. After a number of pails or glass jars have accumulated on the groceryman's hands, he could refill from your 60-lb. tins, and they could be sold back to the bee-keeper, who could use them again. My idea of a glass for retailing extracted honey is one holding 2 lbs., self-sealing, like the Mason, as large a mouth as the quart Mason jar, but not so tall that, when a teaspoon is in it it gets daubed with honey to the top of the handle. The only trouble with the 1½-lb. glass pails is, you can not seal with rubber, and there is some daubing if shipped. A small glass ships safely. I have shipped honey without breakage in the 1½-lb. glass pails. J. B. COLTON.

Waverly, Iowa.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE STANLEY REVERSIBLE EXTRACTOR; A SPLENDID TESTIMONIAL.

MR. ROOT:—We have used the Stanley reversible extractor for six years in two apiaries. For the first three years we also used a non-reversible extractor, because of mechanical defects in the Stanley as first sent out. For three years we have used the Stanley exclusively. My father says he would almost as soon think of returning to box hives as to non-reversible extractors. This year we took out 11,000 pounds; last year 5000, and in 1887 not less than 8000 pounds. We are extracting now, since cold weather began. The honey is as thick as the traditional "molasses in January," but the extractor does the work well. We use two extractors—one holding four frames, and the other two. Both have gearing. I prefer the four-frame one. Most of our extracting is done by *girls*. Since I was twelve years old I have done a share of the extracting each year, with a *Stanley* four-frame extractor. Does that look as though the Stanley were a "*man*-killer"? Turning the machine is the poetry of extracting; lifting the combs, the *weightiest* prose. Hurrah for Stanley and his Automatic extractor! He deserves a place with Watt, Arkwright, Whitney, and Howe. CLARA JONES.

West Bend, Wis., Dec. 10, 1889.

JAPAN CLOVER; SOMETHING THAT THREATENS TO RUN OUT, IN CERTAIN LOCALITIES, BEE CLOVER AND OTHER USEFUL GRASSES.

Some time ago I wrote an article for GLEANINGS, calling the attention of bee-keepers to the northward march of Japan clover, and its destructive influence on bee-pasturage. In a foot-note under that article, you claim to have consulted the authorities, and found that it was considered a useful plant—useful, I suppose, in killing out briers, weeds, etc.; useful where the land is tilled continually, and such things as meadows are unknown. As I could not believe that I was mistaken, I have, since that time, watched for some other mention of it in the agricultural or bee journals, and have at last been rewarded by finding at least one high authority that takes the same view that I do. The editor of the *Home and Farm*, of Louisville, Ky., in the issue of Nov. 15, has this to say: "Bermuda grass and Japan clover are on the march, and each and all will be sure to usurp the domain previously held by blue grass, timothy, and red and white clover, just as soon as a sufficient decrease of fertility in the soil weakens them below the measure of the strength of the invaders."

My observation agrees with the above, only I fail to see that a decrease in the fertility of the soil is necessary: The invading plants will grow on the best of land. I should be glad to hear from others on the subject. Perhaps friend Jenkins can tell something about it, as I should suppose that Japan clover has had a foothold in his locality for years.

Paris, Tenn., Nov. 27, 1889. W. H. GREER.

ALFALFA, THE PRICE OF; THE GOPHER AND ITS DEPREDATIONS.

Alfalfa seed is now held in our markets at from 9 to 11 cents per pound, and sold by the hundred weight, and not by the bushel; but I suppose a bushel would weigh 60 pounds, hence a bushel would average us $6.00. This, in the way we sow, would be sufficient to plant 2½ acres. In this locality irrigation on alfalfa is more to keep out the gophers than any thing else. Of course, you know that this little fellow, who is second cousin to the somewhat troublesome mole of the Eastern States, is the greatest enemy of the alfalfa root; and my remembrance of the summer seasons in Northern Ohio leads me to believe that no watering would be necessary with alfalfa. I am not so sure, though, that the plant would stand the zero weather, except in localities where there is a heavy and continuous snow to act as a mulch. A mulch, also, of straw and manure, put on before the snow, would undoubtedly help it through the winter.

St. Helena, Cal., Dec. 14. WILL C. AIKEN.

CALIFORNIA HONEY — HOLDING IT OVER AND "GETTING LEFT."

Friend Root:—I have sold but a few tons of my honey yet. I sold it early in the season at 6 cts.; and since that, honey has been dropping off in this market, from some cause that I can not account for. We can get only 5 cents for nice white honey now. We do not like to sell for that, if we can help it. This is the first time that I ever got left by holding my honey until fall. We have left about two tons of honey in the second supers in one of our apiaries. It is so thick that we can not get it out of the combs with our eight-frame extractors. They, of course, are not geared. L. E. MERCER.

San Buena Ventura, Cal., Oct. 12.

BEES FIGHTING AMONG THEMSELVES; WHAT WAS THE CAUSE?

July 2d I bought 1 lb. of bees and queen of you, through R. K. Herriman. I put them in a four-frame hive, one of brood. They did well until about Sept. 1. At that time I saw the queen. I went away for four weeks, then I discovered they were apparently fighting. I kept watch of them, and in that time they had decreased about half in number. In a week longer I united them with another. At that time there was not over half a pint of bees, and no queen, with plenty of sealed honey. I have inquired of a number of local bee-keepers, and they never heard of such a thing as bees fighting among themselves. As you can see, I have lost bees, queen, and all.

Newburg, O., Nov. 1, 1889. D. D. BURROWS.

If your four-frame nucleus did well until Sept. 1, I can not very well conjecture what should have made them act as they did. If your entrance is very large, your bees may

have tried to rob them until they were gradually used up. Could I have seen them, and taken in the circumstances, I think I should have been able to decide where the trouble was.

OLD-FOGY BEE-KEEPERS AND LOW PRICES; GETTING AHEAD OF THEM BY PEDDLING HONEY.

In the spring I started with 32 colonies. Increased to 73, and took 3224 lbs. of comb honey, or a little over 100 lbs. per colony, spring count, in 1-lb. sections. I work for comb honey entirely, as I can find no market here for extracted. I have sold a little over two-thirds of it for 12½, and some for 15 cents per lb. But there are many old-fogy bee-keepers that keep from four up to fifty colonies in the old-fashioned way, who ruin prices. They cut the honey out, and bring it in and sell it for what they can get. That scares other bee-keepers, and they sell for about the same figures. In consequence of this, the storekeepers would pay me but 11 cents, and they sold at from 15 to 18. So I put it on my wagon and peddled it, two sections for 25 cents. I have sold 2000 lbs. that way; and as I have two boys and they did not have much to do, I had them help me. I keep my bees in the city. On my little farm of 11 acres, right on the river, I have 56 chaff hives and 17 single-wall hives. Our city has a little over 30,000 inhabitants.

Joliet, Ill., Dec. 2. THOMAS BOSSOM.

SWARMING IN THE MIDDLE OF NOVEMBER.

Did you ever know bees to swarm as late as the middle of November? November 20 was a very warm day (70°), and about noon I noticed that my bees seemed to be in quite a commotion, just as if they were swarming. I went to see what was the trouble, and found them settling on a small tree near one of the hives, and they seemed to be trying to get back into the hive, but the others drove them off and away from the tree; but there was at least a pint of bees killed in and around the hives. They afterward settled on a post. I put them in a box, and fed them some, but they all froze Thanksgiving eve. There was about a quart of bees when I hived them. MORRIS CRAWFORD.

Quenemo Kan., Dec. 2.

Your bees did not swarm out naturally. It was rather a case of absconding. Unless you know to the contrary, I should say it was a colony that was starved out. They might have come from an adjoining apiary, or from the forest. In such cases they almost always try to force an entrance into some good colony, but with just about the result you describe.

RED LICE INSIDE OF A HIVE-COVER; WHAT WERE THEY THERE FOR?

In a neighbor's apiary which I visited a few days ago I saw some very small insects adhering to the under side of the cover of the hive. They can scarcely be seen by the naked eye; but by placing them under a magnifier of about ten diameters they appear like red lice. One or two teaspoonfuls can be brushed from inside a cover; and piled together they resemble brick dust. None were found upon the bees or inside the hive where the bees have access. Friend Zeller and myself examined the bees very closely, with a view of ascertaining whether bees might have lice; but as none were found upon the bees we concluded that the insects had got into the hive for comfortable quarters. Can you give us any information as to what they are? D. L. HOLCOMB.

Arcadia, Wis., Nov. 20, 1889.

Prof. Cook replies as follows:

Without doubt these are mites. They doubtless gathered under the cover for warmth. It is not probable that they have injured or will injure the bees, though mites often do annoy and even destroy bees and other insects. A case is mentioned in my Manual. The hen-mite often annoys fowls very much. If Mr. H. will send me specimens I can speak positively. A. J. COOK.

Agricultural College, Mich., Dec. 7.

BEES FLYING IN THE RAIN.

About a week ago it was raining quite hard. It had been very cold before that; and as I passed by my bees I noticed that they were flying quite strong. I should not suppose they would fly in the rain; would you? When bees have the dysentery, will they fly out in cold weather, and cover the front of the hive with this yellow matter?

Greenleaf, Mass., Dec. 4. F. W. GREENLEAF.

Friend G., your bees have a sort of dysentery, without question. I should conclude they had been gathering something that was unwholesome. If there is very much of it in the hive, it may use them up. I should not be in haste, however, to decide. Feeding them stores of granulated sugar might arrest the trouble; but at this season of the year it is a little difficult to give any help.

A QUESTION CONCERNING BROOD-FRAMES.

Does it make any difference which way a brood-frame is placed in the hive; i. e., crosswise, or in the direction of the entrance? If any difference, what is it? Do bees fill that portion of the frame or frames next the entrance first?

Masontown, Pa., Dec. 4. LOWRY JOHNSON.

Many bee-keepers think there is a difference; but my impression is, it is so small as to make no *material* difference. Father Langstroth rather preferred having the entrance at the ends of the combs, and during the busy season letting the bees in clear across the whole end, that they may have access to the spaces between the frames without having to crawl from one frame to another. I have not been able to see that bees deposit their honey nearest to the entrance, unless, indeed, honey is coming in so rapidly they drop it almost everywhere. During some of our great yields I have seen them put honey in bits of comb carelessly left on the alighting-board.

IGNOTUM TOMATO.

I am certain that tomatoes will mix, if planted together. Ignotum is the finest that I have grown in 20 years. P. B. STOUT.

Paola, Kan., Nov. 27, 1889.

Friend S., I think you are mistaken about tomatoes mixing. Our experiment stations have so decided. If they have changed their decision we should be very glad to hear from them. By the way, it is almost impossible for a private experimenter to give a matter of this kind the very thorough test that it gets at our stations. They go to the expense of a large number of experiments, varied in every possible way; and where they once make a decision, I think I would abide by it.

CUCKOO-BEES.

I have had trouble with the cuckoo-bees, and did not know what they were until I saw Prof. Cook's explanation. I am the one who first called attention to them at our bee-meeting last May, and that was what set the investigation on foot. If what Prof. Cook thinks is true, they are going to be a terrible pest; for, so far as I can learn, they are spreading. I already hear of them in three counties, and so far we know no remedy. The idea of their breeding in the hive never occurred to me until I saw Prof. Cook's article. I sold my bees last spring, so that I had no opportunity to observe them after I found out what they were.

Noblesville, Ind. T. W. ABBOTT.

SIZE OF BROOD-CHAMBER AS AFFECTING LONGEVITY OF QUEENS.

Will a queen last longer in a small brood-chamber than in a large one? Is it possible to have the brood-chamber so large that the oviparous duties of the queen would exhaust her in one year?

Fayette, Miss. J. N. BEDFORD.

Friend B., the size of the brood-chamber has little to do with it unless there are bees enough to prepare cells for the queen to lay eggs. Then the question assumes this shape: Will a queen become exhausted by having a very large colony of bees, with hive to match, sooner than she would with a small colony of bees? My impression is, that the queen is not harmed by doing extra work; for some of the queens that have lived the longest have produced the greatest number of bees, and given the greatest crops of honey.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

Can I make any thing selling honey—that is, buying and selling, and peddling? J. G. NANCE.

Gracey, Ky., Nov. 26, 1889.

[Without knowing our man, friend N., I do not know how we could answer. There are people who make buying and selling honey their exclusive business, and we have some friends in mind who take whole cities like Cleveland, Columbus, and Toledo, and canvass them thoroughly, going to every house, and showing samples of their honey. They have for years been doing a good business.]

KEEPING BEES ON SHARES.

Suppose A has an apiary of 20 colonies, and lets it out to B on shares, B to do all the work and bear all expenses, A to get his share in money, what part should A get? WM. COLEMAN.

Birr, Ont., Nov. 20, 1889.

[Such questions are hard to answer. The best answer I can give is to say, "Just as you two can agree." I think it will be very much better for B to buy the 20 colonies outright, then he will have all the money himself—that is, providing there is any. We do not favor putting bees out on shares, especially so small a number.]

SHUTTING BEES IN THE HIVES DURING WINTER; IS IT ADVISABLE?

Would it injure bees to keep them shut in the hives in the winter time, by nailing screen wire over the entrance? DANIEL RICHARDSON.

Spencerville, Ohio, Dec. 7.

[It depends upon where you put your bees, friend R. If in the cellar, I think I should prefer to have them fastened in; but in that case I should want plenty of space under the combs, that dead bees might fall down out of the way. Where bees are wintered out of doors it is not generally considered best to fasten them in.]

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth $1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

F. W. G., Massachusetts.—You can Italianize at almost any time during the warm months of the year. It is usually better to wait until after the main honey-flow.

CELLAR VENTILATION FOR BEES.

W. B. W.—Do not go to the expense of putting in extra ventilators for the bees. Open the cellar door and windows at night, and close them before daylight. In colder weather, of course you will not need to do this.

ARE DEEP HIVES BETTER FOR WINTERING THAN SHALLOW ONES?

J. W. C., Ohio.—Theoretically a deep hive is better for wintering than a shallow one; but practically there is no difference. Those who have the Langstroth hives, winter their bees just as successfully as those who have deeper hives. We can make beehives of odd size if you want, but you will always have to pay more for supplies.

J. W. F., Kentucky.—Yes, you can feed the bees in the open air in the spring, or, in fact, at any other time, providing you put your feeder at a distance of, say, 100 yards from the apiary, house, or public highway. The honey should be pretty well diluted, and should be fed in an atmospheric feeder, or in any feeder that will prevent the bees from being daubed or drowned. We usually prefer to feed in this way cheap sugars dissolved in water. For full particulars, see "Water," in the A B C book.

FOUL BROOD; ACIDS A FAILURE; A SURE WAY TO CURE IT.

J. W. F., California.—Your favor inclosing 85 cts. for an atomizer is received. Later experience, as you will see by more recent issues of our journal, has convinced us that the acid methods for curing foul brood are of but little avail. Even C. F. Muth, who for years advocated salicylic acid, now pronounces it a failure. We should be glad to send you an atomizer, but we don't wish you to invest your money where it would do you no good. The only satisfactory way to treat foul brood is to scald the hives with boiling water for 15 or 20 seconds; burn the old combs and frames of brood; shake the bees on to frames of foundation, and the cure is certain. For particulars, see "Foul Brood," in our A B C book. Perhaps it would be interesting to you to know that, at the last session of the N. A. B. K. A., at Brantford, it was declared most emphatically that spraying with acid for foul brood is a failure so far as cure is concerned, and a waste of time.

REPORTS ENCOURAGING.

FROM 14 TO 30, AND 1500 LBS. OF COMB HONEY.

I started in the spring with 14; lost 2 in wintering, they being queenless. I increased to 30, and got 1500 lbs. of comb honey, mostly gathered from alsike clover and basswood. There are about 50 to 60 acres of alsike clover within reach of my bees.

West Granville, Wis., Dec. 2. H. J. RAEBEL.

$203 PROFIT FROM THE BEES.

I will send in my report for this year. In the spring I had 34 hives, and now I have 74 and about 1500 lbs. of honey. I sold the most of it for 15 cts. per lb. I sold 88 queens, which brought me $115. My clear profit for this year is $203.35 from queens, honey, and fixtures. J. W. TAYLOR.

Ozan, Ark., Nov. 24.

FROM 6 TO 20, AND 1036 LBS. OF HONEY.

My report for the past season is this: I began the season with six colonies, and increased to 20. I extracted 1036 lbs. of honey, which sold readily at 10 cts. per lb. I also sold one colony of bees. The remaining 19 go into winter quarters with plenty of stores, and the prospects for a beginner are encouraging. L. D. W. LUNDY.

Victor, Ont., Dec. 6.

My report for 1889 is as follows: Spring count, 12; four weak, the rest only fairly strong. No apple bloom. White clover commenced to yield May 28th. By being missent I did not get sections until swarming commenced, June 7th. I increased to 19; doubled up to 17, which I have packed for winter, whenever it comes. Yield, 366 lbs. from white clover; 139 lbs. from fall flowers in sections one-half to three-fourths filled. All sold; home market, 16 cts. WM. S. ADAMS.

Guys, Md., Dec. 5.

FROM 33 TO 40, AND 4000 LBS. OF HONEY; STRONG COLONIES INDISPENSABLE FOR CLOVER.

From 33 colonies we secured 4000 lbs. of comb honey, increased to 40, which is an average of over 100 lbs. to the stock. Getting all strong by the time white clover is yielding nectar is every thing toward securing a large yield in a location where the harvest depends on white clover. In order to accomplish the desired results, good queens are indispensable. A. A. GILBERT.

East Arrow, N. Y., Dec. 17.

3000 LBS. OF HONEY FROM 45 COLONIES.

Colonies, spring count, 45; increased to 70. Honey, 1½ tons, one-fourth of which was comb. Almost all sold at, extracted, 5 to 6 cts.; comb, 11. Swarming began about April 1, and continued about 2 weeks, with an occasional swarm during the summer. Early in May, bees seemed to get a little honey, and were inclined to rob. They began to work in sections the first week in June, and continued to store some all the time till in October; and are still gathering enough to keep them. WM. STEVENSON.

Pasadena, Cal., Dec. 6.

ONLY A SPRINKLE, AND THE OTHER FELLOW GOT IT.

Here is my report for 1889. I increased from 27 to 44 colonies. I worked 8 colonies for extracted honey, and the rest for comb honey. From the 8 colonies I extracted 352 lbs., and they would have just doubled in the number of colonies had not three swarms absconded. From the 19 colonies I got 365 lbs. of comb honey, and they increased to 31. The 19 gave me 12 new colonies. Last March and April I got my barrels and tubs ready, for I thought from the looks I was going to get a regular deluge of honey; but it passed quietly around, and I got only a sprinkle. The "other fellow" got it. Well, never mind; it will come my turn after a while. I should not grumble, however, for I did better than any other bee-keeper that I know of in this county.

THE ITALIANS AHEAD.

The two last seasons have fully convinced me of the superiority of the Italians over the black bees. The blacks gave me no surplus last season, and not much this. They did not have half enough stores to winter them either season, while the Italians gave me a little surplus last season, with an abundance of stores for themselves and the blacks too. They gave me twice the surplus this season that the blacks did, and enough stores to winter themselves and their black neighbors.

W. Z. H.'S PLAN OF HIVING SWARMS.

I hived a new swarm of Italians on six empty frames, by the W. Z. H. plan, June 14th. They gave me 36 lbs. in 1-lb. sections, and plenty of stores for winter. I hived a new swarm of blacks in the same way, June 15th. They did not give me a single pound of surplus, and only about half enough stores for winter. I sold my crop of honey at 12½ cts. per lb. for extracted, and 15 cts. for comb.

Paris, Ill., Dec. 14 J. P. ADAMS.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 151.—*a. What size of brood-frame are you using? b. For your purpose, and in your locality, do you think you could produce as large or larger crops of honey with any other size of frame?*

The Langstroth frame seems to be the best for me.

Ohio. S. W. C. F. MUTH.

a. Langstroth frame. b. I think there would be no gain in adopting another size.

Illinois. MRS. L. HARRISON.

a. The standard Langstroth. b. Possibly; but the L. suits me best for all purposes.

Wisconsin. S. W. GEO. GRIMM.

a. Langstroth size. b. I have tried other frames, but for my purpose it suits me best.

Ohio. N. W. A. B. MASON.

a. Simplicity - Langstroth. b. No. The size of frame has nothing to do in the yield of honey, provided you keep in the limits of rationality.

Louisiana. E. C. P. L. VIALLON.

a. The regular Langstroth frame. b. Yes, I think I could produce just as much honey from various other sizes and shapes of frames.

California. S. W. R. WILKIN.

a. 18 x 9, outside measure. b. I doubt if it would make any difference; but I wish I had the regular Langstroth size, for the sake of being like others.

Illinois. N. C. C. MILLER.

a. 12 inches long by 9½ deep, inside measure. b. No, neither in mine nor in any other locality.

Vermont. N. W. A. E. MANUM.

a. Regular Langstroth. b. Gallup. c. New Heddon. For extracted, no difference. For comb, I think Heddon the best.

Michigan. C. A. J. COOK.

a. The Gallup. b. No. I think the Gallup the best size of frame in the world, all things considered. If I did not, I would change to the one I considered better.

New York. C. G. M. DOOLITTLE.

a. I am using the regular L. frame and another frame, which is 21 inches high and 13 inches wide. I think the frames that we are using are as good as any that we know of.

Wisconsin. S. W. E. FRANCE.

a. 12 inches square. b. No more, certainly, and probably not as much, until after I had spent years in learning how to use some other size to the best advantage.

Cuba. O. O. POPPLETON.

a. 12¾ x 12¾ inches inside measure. b. I don't lay much stress upon the size or shape of the frame, except for the convenience of the apiarist. This size and shape suit me for all purposes in my locality.

Ohio. N. W. H. R. BOARDMAN.

a. The largest part of my bees are in the regular Gallup frame. b. No frame that I have tried equals the Gallup frame for extracted honey. I have at present about 100 colonies in 8 and 10 frame L. hives. I had thought at one time of transferring my Gallup into L. hives; but the experience of the last two years has convinced me and those working for me, that, for extracted honey, the transferring should be the other way.

Wisconsin. S. W. S. I. FREEBORN.

I use the Simplicity frame in half my apiary, and the Gallup in the other half. This is not a state of things to be recommended, but the apiary was so when I bought it, and both frames have enough good points that I dislike to exterminate either. With the lapse of years I find myself leaning a little more toward the Simplicity. I do not think any other size could improve on its honey results very much.

Ohio. N. W. E. E. HASTY.

a. We use mostly the suspended Quinby frame, 18½ by 11½, outside. b. According to reports coming from several parts of the United States and Europe, a large comb and a large hive give us larger crops with far less work than small combs and small brood-chamber. Our experience on this question is based on comparisons made on three kinds of frames and hives during 20 years. We have both the Quinby and the Langstroth frames in use now, and the Quinby hives *always* yield larger crops.

Illinois. N. W. DADANT & SON.

We are using two sizes—my old style hanging frame, 11 x 14, and the shallow closed-end frame. With proper manipulation there is not much difference in the yield. What difference there has been during the past season has been in favor of the large frame and large brood-chamber. Several causes enabled the large frames to secure the best results. Plenty of old combs were on hand to storify the old hives to the utmost limits, while the shallow frames were filled with foundation to be drawn. It will take another season's trial in my yards to demonstrate the value of the two sizes of frames.

New York. E. RAMBLER.

In my old style of Langstroth hive I am using the standard Langstroth frame, eight to the brood-chamber. In my new patented hive, which you have all heard of, the frame is an inch longer than the Langstroth frame, inside measure, because the end-pieces are not quite so thick, and there is no space between them and the ends of the hive; and instead of being eight inches deep in the clear they are only five inches deep, and I use eight of them in the brood-case, and two brood-cases constitute one brood-chamber. With this arrangement and this size of frame I get more bees with less labor and more surplus honey than with any other frame or arrangement I have ever used. Please excuse my statement of the above facts.

Michigan. S. W. JAMES HEDDON.

The general preference seems to be for the Langstroth frame, and we had no doubt that it would; and the fact that it is in so general use, if for no other reason, should induce not only those just commencing, but those who can think of making a change, to get as quickly as possible into line. From the above, the Gallup frame seems to come next in the way of preference. Very likely, however, the American frame would answer almost every purpose, unless it is that it is a little too deep. There are some very good reasons for having a frame still larger than the Langstroth, such as the suspended Quinby, used by the Dadants; but I think that he who uses something different from the common run will sooner or later suffer by it. Our friend Dr. C. C. Miller has something almost like the L., but not quite. During years past he has raised only comb honey, and has therefore got along very well; but should he undertake selling bees and queens, as I think he has some idea of doing, he will find himself in an embarrassing situation. Nobody wants to buy bees in a frame that is almost but not quite an L. A great deal depends upon what one is accustomed to; and I feel quite certain that those who have expressed a preference for something different from the L. could, with very little loss, when they really got at it, manage to accomplish every thing with the L. that they accomplish with the other frames. In our manufacturing business, every year that passes brings us *larger* orders for the L. frame, and *smaller* ones for all other kinds. A few days ago a man sent in an order for a single Gallup hive. Now, although we have illustrated and given the dimensions of the Gallup frame for 12 or 15 years, we have not had a single order for a Gallup hive in two or three years. Not one of our hands, not even the oldest ones, knew how to go to work to make one, without instruction; and this is the case while we have shipments of hives holding the L. frame, going out by the carload almost constantly.

MYSELF AND MY NEIGHBORS.

He made himself of no reputation, and took upon him the form of a servant, and was made in the likeness of man.—PHIL. 2: 7.

ONCE upon a time, so we are told, a good missionary felt called upon to go and labor for the salvation of a certain class of slaves. These slaves were under such cruel bondage that they were obliged to work at the most heavy and fatiguing labor, from very early in the morning until very late at night. In fact, their overseer was so cruel and heartless, that, if they did not spring to their feet at the ring of the bell in the morning they were led not only to expect harsh words but cruel blows; and his tyranny was so great that they barely had time to eat their simple meager crust before they fell asleep at night. In the morning and at noon they were permitted to stop their toil only long enough to partake of the plainest food, furnished only in sufficient quantities to sustain life. The missionary could really find no opportunity to present the gospel of Christ Jesus. But a worse obstacle still, was, that they did not *believe* what he had to say, and, in fact, did not *care* very much about it either. They could not see any point or comfort or hope in Christ's promise, "Come unto me, all ye that are weary and heavy laden, and I will give you rest." Their spirits were so ground down, and life and hope were so crushed out of their poor souls, that they gave up, and toiled on in a dejected, sullen sort of way, like veritable beasts of burden, and they had come to be but little more or little else. This good missionary, however, could not give up. Missionaries are celebrated for laboring long years without any apparent fruit manifesting itself as a reward for their labors. And this missionary had the true spirit of Christ Jesus in his heart. It made his kindly heart bleed, out of sympathy for these poor downtrodden people. In that day it was customary to buy and *sell* slaves; but they had so lost spirit and life that it did not make much difference to them whether they belonged to one man or another. They had learned to regard the white man as their bitter enemy and foe. Their overseer was white, and the missionary was white; therefore they reasoned, "How can he know any thing about us or our condition? and even if he says that the Christ whom he tells about has proffered salvation to the black as well as to the white, what does he know about it? He is a white man; he has liberty; he is permitted to own property; he has education; he is a *man*, while we are only colored slaves. There is no hope for us."

Now, this good missionary was finally led to the conclusion that, if he would do any thing to save these people, he must come down to their level. As it was, they held aloof from him. They looked at him from a distance. Even though he told them he was their *brother*, they did not believe it, nor accept the statement. It was too improbable and too ridiculous. He must have some plan in his head, probably something that would in the end make them still more miserable and downtrodden, they thought. For a long while he pondered the matter. He was so intent on reaching them, and saving at least some of them, that he slowly came to the conclusion to do what most men would call a crazy and a rash act. His plan was, in short, this: To become a slave himself. Slaves were sometimes, under some circumstances, permitted to purchase their own freedom in those days. In the same way, a man could, if he chose, *sell* himself into slavery. This missionary, finally, as a last resort, *sold* himself into slavery. We do not know what he did with the money which he received as the price of his liberty. He certainly did not spend it in riotous living. Most likely it was invested in a way that would assist in carrying out his lifelong plan. He became a *slave*. He lived in a hovel with the other slaves, and he endured the very same toil they endured, side by side. Of course, he was a good, faithful, and obedient slave, and we hope he escaped the hard words and the blows that fell to the lot of others. Very likely, however, he did not, for overseers who happen to be wicked men often delight in showing their authority, and being unreasonable and tyrannical with even the best of their servants. Whatever it was, he *endured* it all for *their sakes*, and glorious was his reward. The hope of his life was accomplished, and one after another of his colored comrades came to Jesus. When he surrendered liberty, position, and all that this world can give for their sakes, they believed. His heroic act touched their hearts, and brought them to Christ, when nothing else would have availed. He gave his *life*, that they might *live*.

Dear friends, do you begin to see the application and the purport of my little New Year's story? The great God of the universe, the creator of all things, in his love and sympathy for *us* did just what I have pictured in this simple story, that was told in my hearing not many days ago. Now see if you do not see a new beauty in some of the texts of Scripture which I am going to repeat to you with the above application in mind:

"For God so loved the world that he gave his only begotten Son . . . . . that the world through him might be saved." Let us now turn to the verse preceding the one at the head of this talk: "Who, being in the form of God, thought it not robbery to be equal with God." And now comes the beautiful thought of my text to-day: "But made himself of no reputation, and took upon him the form of a *servant*, and was made in the likeness of men."

Let us now take the verse after our text: "And being found in fashion as a man, he humbled himself and became obedient unto death, *even the death of the cross*." It seems hard to stop right here, dear friends, so let us read the following verse: "Wherefore God hath also exalted him, and given him a name which is above every name."

Well, this does not seem to be a good stopping-place either. Let us read two more verses: "That at the name of Jesus

every knee should bow, ... and that every tongue should confess that Jesus Christ is Lord."

Now, friends, you have the picture that I wish to place before you. Is it not enough of itself, even though all the rest of the Bible were dropped? Are not these few words enough to proclaim Christ as king? There are some other passages I want to quote from—passages that were written before Christ came. A great part of the world seems inclined to reject Christ because he, with the universe at his command, should condescend to so low a position; that he should, when he came here on earth, in obedience to the will of the Father, choose a place among the lowly and humble. Let us now go over some of the beautiful words which are found in the 53d chapter of Isaiah: "And when we shall see him, there is no beauty that we should desire him. He is despised and rejected of men; a man of sorrows, and acquainted with grief, and we hid as it were our faces from him. He was despised, and we esteemed him not. Surely he has borne our griefs and carried our sorrows. He was wounded for our transgressions, he was bruised for our iniquities. The chastisement of our peace was upon him, and with his stripes are we healed. All we like sheep have gone astray. We have turned, every one to his own way."

Suppose, now, when this good missionary had come among these poor slaves they had *even then* refused to accept his proffered help, or refused to listen. I presume likely some of them did do that very thing; but even if they did, should we be in haste to judge and condemn? Haven't we, in fact, done pretty much the same thing, after he "endured the cross and despised the shame" for our sakes?

And now I come to the second part of my talk this morning. A good many think they have no room for Jesus. In fact, when God saw fit to send his only Son, Christ Jesus, down to this world of ours, to live a human life, to toil with us and by our sides, that he might save us, at the very outset the world decided there was no room for Jesus. Instead of giving him a palace for his birth, and the most gorgeously furnished cradle that the world could procure for the new-born babe, he was born in a *stable* and cradled in a *manger*, "because there was no room for them in the inn." It is true, there were good shepherds watching, and they very soon found him out, for an *angel* led them. This angel proclaimed, "Fear not, for behold I bring you tidings of great joy, which shall be to all the people; for unto you is born this day in the city of David a Savior, which is Christ the Lord." You see, the great God took pains to announce him to the world, that the world might know that the promised Messiah had come. Yes, a *heavenly host* praising God came with the announcement, "Glory to God in the highest, and on earth peace, good will toward men." Now, even though the above be true, notice that nobody took any particular notice of it. We are told that the *mother* "kept these sayings, and pondered them in her heart," but the world at large forgot all about it.

Jesus grew as other poor children grow. He doubtless went to school, and we know he learned a trade. I once heard a carpenter say that he always felt happy with his calling, when he remembered that it was the occupation of Christ Jesus when he worked among men. Jesus toiled just as we toil, until he knew every phase and every temptation common to poor humanity. When he went to take up his public ministry, again came the plea, "We have no room for Jesus;" and some said in plain words, "We will not have this man to rule over us." Were they excusable in refusing to believe so strange and incredible a tale, as that *God himself* had come to earth? Why, they might have been had not his presence been daily attested by a series of miracles—miracles performed in the open air, and all before crowds of people. In fact, at one time *five thousand* were *fed*. They had a good dinner; and if there is any thing in this world that a man is sure of, especially when he is hungry, it is in regard to his dinner. You can not persuade him that he has been fed, nor can you by any illusion make him say he has had his dinner when he has *not*. Jesus constantly, and step by step, demonstrated to every intelligent and thinking human being that he held in his hand the power of God. In fact, bystanders once said, "What manner of man is this, that even the winds and the sea obey him?" Notwithstanding all this, he was at the same time the *servant* of the people. He had so completely *surrendered* his liberty and himself that he never performed even one miracle for personal need. He was often hungry and thirsty, and fatigued and sleepy, yet he took his chances just as we do. No miracle ever favored him. One of the infidel writers said that Jesus went through life a poor, sad, and sorrowful man, *disappointed at every turn*. Now, I do not think this writer has stated it quite truly; but for all that, there is a pathos in the description of that unbeliever, that to me is deeply touching. I like to think of it—disappointed. Yes, he was disappointed because of *our* unthankfulness and ingratitude. He was truly disappointed, and rejected of men; a man of *sorrows*, and acquainted with *grief*. Why, sometimes I feel as if I could cry when I think of it. But I think the cry would do me good, because I should say, as I wiped my eyes, "If this indeed be true, I think I won't repine any longer. I won't mind it, even if folks do forget how hard I have toiled to give them a place where they might earn their daily bread. I won't mind it, even though I receive rude and unfeeling words in recompense for my pains. Christ Jesus did a thousand times more. I am go- n g to be happy, and smile through my tears, because it is *my* great and inestimable privlege to follow just a little in the Master's ootsteps." Now, then, dear hearers, shall *we* say in our hearts, "There is no room for Jesus?" Shall *we* reject him, and refuse to accept his love and his companionship when he left his throne in heaven, to come and be one among us? It seems to me I hear you say, "Dear Bro. Root, we do not reject him,

and we will not, if he will forgive us for our past neglect. If he will pardon our past ingratitude when we have turned our backs toward him, we will come to him this New Year's day. We will gladly accept of his companionship." Why, the word "companionship" almost makes me tremble, to think of so familiar a term in regard to the *mighty Son of God.* And yet, is it not true? Do not the words I have quoted prove it? While considering this theme I have been wondering why it is that any one should refuse to accept Christ. Some of us have abundance of this world's goods. May be we have every thing we need, and think we do not need to ask any odds of anybody. But, dear friends, all the wealth in the world can not preserve health. The very breath you draw is in God's hand, and death is near. In that one respect, at least, we are all alike helpless. We are all dependent upon the great Ruler of the universe. We must sooner or later come to him, whether we wish to or not. We may carry our defiance and stubbornness to the brink of the grave, but we are helpless finally. Spite and stubbornness are terrible things. I once heard of a husband and wife who carried it to such length that it is said they did not speak to each other in long years, even though living in the same household. Of course, there was none of the spirit of Christ Jesus in the heart of either. It is Christ Jesus that *cures* just such difficulties. He heals all such troubles by a single touch, as he did ages ago; and it is his *delight* to heal and help, and nothing else can do it. I suspect that many hold aloof, and continue to refuse to hear him, and even turn their backs toward him, because of some such foolish spite or jealousy. Some refuse, and turn from him, because they are guilty of wrong doing. Some seem to recognize that, should they become Christians, they must be fair and open, and honest and true with their fellow-men; but they have been so long accustomed to being little and small, and tricky and evasive, that they will swap their chances of a home in heaven, just to gratify this foolish, silly, evil passion; and at the same time these little tricky ways defeat the very object in view; for no man or woman can well accumulate property while having a reputation for little vices like these. Now, then, dear brothers and sisters, if you have lived until the present moment without the joys of being a *servant, for Christ's sake* let me beg of you to commence this day. Let us do as he did, and take upon ourselves the form of a servant, remembering that, by so doing, we shall be serving him; for he has said, "Inasmuch as ye have done it unto one of the least of these my brethren, ye have done it unto me." And let us, when tempted and tried, and when we get inclined to be stubborn, and say we are not going to be a slave to anybody any longer, repeat the text that I gave you when I started out to talk to-day—"But made himself of no reputation, and took upon him the form of a servant."

Have you any room for Jesus,
He who bore your load of sin?
As he knocks and asks admission,
Sinner, will you let him in?

Room for pleasure, room for business;
But for Christ, the crucified,
Not a place that he can enter
In the heart for which he died?

CHO.—Room for Jesus, King of glory!
Hasten now! his word obey!
Swing the heart's door widely open—
Bid him enter while you may.

THE INTERNATIONAL CONVENTION AT BRANTFORD.

CONVENTIONS IN GENERAL, AND WHAT THOSE WHO DO NOT ATTEND, AND DEPEND SIMPLY ON THE PUBLISHED REPORTS, DO NOT GET.

As I came back, I found, after all, there was very little I could put down on paper; and yet there was much that I had absorbed, and which I know, from past experience, will be of value to me. There are a great many things that do not get into reports, that stick by us; and he who attends the convention will get the benefit of it. It is these same things in editors that have a fashion of cropping out now and then through the pages of the bee-journals.

I wish to commend the most excellent report which is given in the *American Bee Journal*, by friend Hutchinson. While I am about it I might extend the same compliment to Mr. Macpherson, of the *Canadian Bee Journal.* Both gentlemen have left out the chaff and given us the kernels. As at almost every convention, there was some chaff with the wheat, and it requires no little discrimination to get at the gist of it, or, to carry out the figure, separate the wheat. After one good brother, who had wasted, as I thought, a good deal of valuable time on the floor, and had finally, to the relief of everybody else, taken his seat, Bro. Hutchinson (who sat near me) leaned over to me and whispered, "What is the gist of that?" I laughingly replied that I could not tell him; but as it did not appear in the report published, I presume there was not any gist to it at all. I do not wish to convey the impression here that the convention was bored very much with such chaffy speeches; but at every convention there are a few of them, and he who reports the proceedings carefully must exercise a great deal of editorial discrimination. Did you ever think of it?—editors and reporters are nothing but professional fanning-mills. They try to retain the wheat, and blow out the chaff. I wish that we might have more wheat and less chaff at conventions when many of us are on expense. The president can do a great deal, but the members of the convention can do more, in helping him.

There is one thing which I wish could be put on paper, and that is the enthusiasm which we all get at conventions. It is as good as a show to hear Dr. Mason get off some of his dry jokes while in the chair. They were not nonsensical jokes either. And there was that inimitable J. B. Hall, with his Scotch accent. In his earnest and apparent innocence, he had the whole convention laughing before they knew it, several times. And there was R. L. Taylor, who scarcely if ever smiled, but in some way or other had the faculty of getting off something pretty sharp every now and then. To

hear Prof. Cook talk is enough to make one feel there is nothing in the world so pleasant as bee-keeping, or experimenting upon whatever line he is talking upon. I watched the faces of a good many while he was talking, and I could see an enthusiasm and a glow that showed that something of more than ordinary interest was going on. Oh dear! there are so many others who deserve personal mention, that I fear I must stop short off, or some good brother will feel hurt.

I do not know of any thing at the convention that gave us more real pleasure, and that made us wake up, if we were inclined to be sleepy, than the bee-keepers' songs. Unfortunately our good friend Dr. C. C. Miller was absent; but very fortunately the secretary, R. F. Holtermann, had secured the services of the City Quartette. Every time a song was rendered there was a quick and hearty encore; again and again they were called up; and again they were encored. The quick German wit of our friend Eugene Secor's original songs, and the melody of the music composed for the occasion by our own Dr. Miller, no doubt gave the songs a freshness and newness that they possibly would not have had otherwise. I think our association ought to be proud of two such men—a real poet and a real musician, either of them of no mean talent. While I am dictating this my eyes rest upon the report in the last *American Bee Journal*. In touching upon this point W. Z. H. says, "The session was opened very pleasantly by singing several of the bee-keepers' songs. The last one that was sung was one that appears on page 772 of the *American Bee Journal*. This was rendered in such a way that it 'brought down the house.' It did us good to see the old, staid, and sober President Mason so far forget himself as to slap his knees, tip back his head, and shake his sides with laughter." You are just right, Bro. H. We all felt like Dr. Mason, but we did not express it in the hearty manner that he did. Don't let there ever be held a convention again, without the bee-keepers' songs being a prominent feature. Sometimes it is a little tiresome to sit for a couple of hours, without something to enliven our spirits. The music will more than offset the time it takes up by the freshness and invigoration that will be sure to follow in the discussion.

I wish you could all have shaken hands with those hearty Canucks. Well, I will shortly introduce you to their faces. Bro. Holtermann had arranged to have one of the city artists take a picture of the convention. The picture was taken, and is a most excellent one—a far better one than I could have taken with my camera, even if the Canadian officials had not put it in safe keeping at the custom-house office. This picture will be reproduced by the elegant half-tone process, for the readers of GLEANINGS, and then we are going to introduce each of the members, one by one, to you.

After the convention closed, a party, consisting of Mr. and Mrs. C. P. Dadant, Mrs. Root, and your humble servant, took in Niagara Falls. We should have been glad if the party could have been made larger; but the other members, for various reasons, could not go. On the way there I enjoyed one of those unconventional bee-talks with Mr. Dadant, who, as you all know, is an extensive bee-keeper, and the prince of foundation-makers. As I neared Suspension Bridge I began to have some misgivings about my camera, which was, as you remember, in the custom-house office. I took along my friend Dadant to help me, and, if necessary, swear that I was an honest man and never cheated any one—not even a custom-house officer. I arrived at the office at 7 in the morning. Yes, the camera was there all safe and sound. On presenting my name I was duly informed that I should have to wait until 11 o'clock, and go into the United States, which was only a few hundred yards away, over the bridge on the train. With some reluctance I left, Mr. Dadant and I with our better halves taking in the Canadian side of the Falls in the mean time. At the appointed time I returned; and after what I thought was some red tape, I was handed over to the American custom officer, who conducted me back with my camera into Uncle Sam's domain. No, sir; if you ever catch me in the Canuck borders again with a camera, that great "big wall" that seems to me ought not to be there will have tumbled down. The Canadians are every whit like us. They use the same coin, speak the same language, and yet we must pay duty on going back and forth. Hold on! I am not going to branch out into politics. I am not a free-trader—no, I won't tell what I am; but just let me whisper in your ear, that, if you are a real strong protectionist, and get caught in a custom-house office between Canada and the United States, you will either not be quite so strong a one or you will preach annexation for the next ten years.

In due time I got safely into Uncle Sam's domain with my camera; but as I left the Canadian official I could not help wanting to take a good picture of him before he knew it, and keep the likeness as a memorial to—protection or free trade, which?

It is quite needless to say, that, when our party reached the American side, we had a good time. I took all sorts of views of the Falls, and some views that I fancy you could not buy, even at the little shops along the Falls. After we had driven around to some of the points most interesting to the ladies, Mr. Dadant and I, after dinner, took the camera, and took other views, both with our eyes and with the camera. Mr. D., who is the present secretary, has promised me that I may take all the views I want to on the Mississippi River at Keokuk, and that I shall not have to be bothered by custom-house officers.

I can not close this sketch without saying that the Brantford convention was in every way a grand success in numbers, enthusiasm, and in good feeling, and that great credit is due the secretary, Mr. Holtermann, for his careful preparation as well as to the "staid old Dr. Mason the president," for his good humor in managing so well a lot of Canucks and Yankees. ERNEST.

THE MICHIGAN STATE BEE-KEEPERS' CONVENTION,

HELD AT LANSING, DEC. 26, 27, 1889.

It was my good fortune to be able to attend the above convention; and it was one of the most pleasant and profitable I ever attended anywhere. The fact that Prof. Cook occupied the chair had very much to do with it. Why is it, dear friends, that Prof. Cook has such an unusual gift for making things of this kind pleasant and profitable? It is, in my opinion, because he loves his fellow-men; not because he says so, but because his kindly feeling toward every one manifests itself by every look and act. It is not particular ones that he feels kindly toward, but it is the great human family at large. When he presides, if there is any one who is inclined to be backward and diffident, friend Cook is sure to find out his name, and to assure him, by kindly words, that we all wish to know him and to hear him speak, and to contribute his mite toward our general fund of knowledge, even though that mite be but a little. There is almost always a tendency in bee-keepers' conventions, as there is in meetings of other kinds, to let the whole interest drift into the hands of a few, and then somebody is always thoughtless enough (I almost feel inclined to say *foolish* enough) to occupy a good deal more than his share of the time. This last convention was a marked exception in this respect; but, once or twice there seemed to be a little tendency on the part of somebody to occupy valuable time on comparatively unimportant matters. Prof. Cook has the rare gift of chiding these forward ones, and yet doing it so kindly that they will not feel hurt. As an illustration:

At one time the topic was, "What other occupation is to be recommended in connection with bee-keeping?" The president remarked at the outset that he wanted brief testimonies from actual experience, from every one in the room. He wished to know what we had *done* and were doing in that line, rather than to suggest for others. Quite a good many were in attendance, and I at once decided that we older ones must start briefly. In fact, friend Cook called on me among the first, and asked me to please state briefly what occupation I would recommend to be taken along with bee culture. I suggested small fruits and gardening, but at the same time mentioned that a great part of this industry came right in with swarming, extracting, etc. Then I mentioned our friend France, who has banished every kind of small fruit from his place except blackberries. He has the finest plantation of blackberries I ever saw, and the berries need attention just at the time the extracting season is over. In fact, the boys are taken right from the bees to the blackberries. During the past season they just finished extracting while I was there; and as the berries were hardly ripe, the whole troop of helpers were permitted to go off on a fishing excursion, to be gone several days. This was their vacation. Friend Cook evidently decided with me, that I had taken just about my appointed share of the time, for he replied;

"There, Bro. Root has given us one very valuable and important suggestion. Blackberries can be cultivated, even on a considerable scale, without conflicting with the duties of the bee-yard at all. Let us now have another valuable fact from some other brother, and so on."

One of the veterans attempted to get up just here; but Prof. Cook laughingly stopped him.

"No, no, Bro. A., you just wait a little. We want to have a sort of Methodist class-meeting of this, and we are going to take the whole convention right through in order."

And so he did, calling them by name, and every one responded in some way or other. It was to me a grand lesson, and the result on the meeting at large was inspiring. I never saw so much good feeling, interest, and enthusiasm, as this simple exercise brought out. Of course, farming and bee-keeping together came up more than any thing else. Some said the two did not conflict, while others complained of being called from the field, toward half a mile away, because the bees were swarming.

The next brother, however, said his wife managed to have her work where she was in full view of the bees; and unless something extraordinary happened, she managed to take care of them herself, or fix them so they could remain until dinner time, without serious danger of loss. Others added their testimony in a similar way.

"There!" said friend Cook, "we are getting at a grand point now. Every bee-keeper who expects to succeed should have a wife; and they *two* should recognize that women are now in these modern days in the habit, not only of furnishing muscle but brains for all the great interests that lie before us as a people."

There were a few present who had neglected the partnership business of man and wife, and we laughingly bore down on them pretty hard. Most of the bee-keepers present were, of course, old enough to have wives. Another was so fortunate as to have boys who attended to things, thus preventing the necessity of being in two places at once during swarming time. The president at once asked, "My friend, do your boys work for nothing, and you take all the money, or do you pay them wages, as you would a hired man?"

The speaker promptly replied that his boys worked the bees on shares, and therefore had good pay.

"That's good!" said the president. "Have your boys work with you, and pay them well and handsomely. Don't forget that the first and most important duty you have in this world is to look out for the comfort, happiness, progress, and well-being of your own children."

When they got around to our good friend M. H. Hunt, we were astonished to hear him say that he had nothing particular to offer. When bantered a little he replied that, to tell the truth, he was getting a little homesick. When somebody asked him why he was homesick, he said Prof. Cook had called out so many testimonials that

obliged the friends to tell about their wives, he had got to thinking of *his* wife. Of course, this raised a big laugh. One good elderly brother, when asked what occupation he followed, aside from bees, mentioned a variety of industries, winding up by saying that he also preached the gospel of Christ Jesus, and that he occasionally married young people, and that within the two preceding weeks he had actually received $20 for marrying a young couple. This, of course, started another burst of merriment; and when Dr. Mason added, "Well worth the money," the laughter increased.

Of course, the matter of employing help to attend to the bees while the owner attended to the farm, soon came before us, and Dr. Mason said that no one need to fear to raise strawberries by the acre, if he wished to, because he is a bee-keeper, for he could hire a man to look after the strawberries, and another one to look after the bees. Of course, the question then arose, "Is it well for the average bee-keeper to undertake to carry on different kinds of business by hiring help?" It was finally decided that some bee-keepers might do it, but others could not; and then the president told us of the reply of one of our great doctors in pomology. Somebody asked him the best material for mulching apple-trees. The reply was, "Brains." A bright young school-teacher had recently commenced with bees, and during the past season he was obliged, before his school was over, to hire one man and three women. He paid them something like $100; but his honey crop brought between $400 and $500, so he felt well pleased with the experiment. Now, my friends, this school-teacher was probably a college graduate, and had a trained intellect. His judgment of humanity was sufficient to select safely the kind of help required. He also had generalship enough to direct the business understandingly. And this brings us back to the president's reply. "Brains" is what is lacking almost every time.

I propose to resume this in our next issue.

CONVENTION NOTICES.

The next annual meeting of the Ontario Bee-keepers' Association will be held in the City Hall in the city of Belleville, Ont., on the 8th and 9th of January, 1890.
Streetsville, Ont. W. COUSE, Sec. O. B. K. A.

The 21st annual meeting of the New York State Bee-keepers' Association will be held at the Court-house, Rochester, N. Y., Feb 5, 6, 7, 1890. Reduced rates at hotels, and on all principal railroads. Each county association is requested to send two or more delegates. Programme and full particulars will appear in due time. G. H. KNICKERBOCKER, Sec.

The Eastern New York Bee-keepers' Association will meet in convention, Jan. 20, 21, 1890, in Agricultural Hall, Albany, N. Y., at 10 A. M. All interested in bee-keeping are cordially invited to attend. Farmers' institute is held at the same place, Jan. 22, 23. W. S. WARD, Sec'y.
Fuller's Station, N. Y.

The next meeting of the Indiana Bee-keepers' Association will be held in the Agricultural Rooms of the State House, Indianapolis, Jan. 15th, 1890, at 1 o'clock P. M. Reduced railroad rates secured by taking a receipt from the agent selling the ticket, and having it indorsed by the secretary of the association. G. C. THOMPSON, Sec'y.
Southport, Ind., Dec. 18, 1889.

The 12th annual meeting of the Nebraska State Bee-keepers' Association will be held in the Lecture-room of the Nebraska Hall State University, Lincoln, Neb., Jan. 15, 16, 17, 1890. Every bee-keeper, and lover of honey, is invited to meet with us. The Horticultural Association meets at Lincoln at the same time, and arrangements are now being made to hold joint sessions. I shall take pleasure in receiving and placing on exhibition any article used in connection with the apiary, that may be sent to me at Lincoln, express prepaid. J. N. HEATER, Sec.
Columbus, Neb., Dec. 23.

The next annual meeting of the Vermont Bee-keepers' Association will be held at Burlington, Vt., Jan. 21, 22, 1890. Excellent hall accommodations have been obtained at the Van Ness House. The Vermont Central Railroad has granted round-trip tickets from the following places: Rutland, White River Junction, Cambridge Junction, Richford via St. Albans, Ticonderoga, and intermediate points, to Burlington and return, for fare one way. A good meeting is expected, and all are invited. For further information and programmes, apply to
J. H. LARRABEE, Sec'y.
Larrabee's Point, Addison Co., Vermont.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

MINISTERS AND TOBACCO; DR. A. B. MASON'S POSITION INDORSED.

I want to say a loud amen to A. B. Mason's remarks about the "tobacco hobby," as given in the account of the proceedings of the International Bee-keepers' Association. I used it very nearly sixteen years, smoking and chewing; but when I was converted to the Lord Jesus, ten years ago, I learned that I must "cleanse myself from all filthiness of the flesh," as well as "of the spirit" (2 Cor. 7:1). I learned that the tobacco habit is one of the works of the flesh and not the fruit of the Spirit (Gal. 5:19-24), and from the day that I threw it away, and in my weakness asked the Lord to take the taste for it away from me, I have not touched it nor had any desire for it (I don't want a smoker for it either). To the Lord be *all* the glory. I have known some professed ministers of the gospel who used tobacco. I have seen them kneeling in prayer, with the tobacco juice running down their beard over their clothes. I have sat beside them in meeting when their clothes smelled so strong that it fairly sickened me, and made me feel more like vomiting than responding amen to their prayers and exhortations. I have known ministers that I thought were starved off the circuit to which they were appointed, when the combined tobacco bills of his flock (of goats) would, if rightly applied, have supported him in comfortable circumstances. I rejoice to think that the air in the kingdom of God will not be tainted with tobacco smoke, nor will the redeemed saints of God spatter tobacco spittle in my face when we rehearse to one another face to face the wonderful grace of God. C. A. MEADE.

Fremont, Mich., Dec. 20.

A BOY OF 17 TAKES THE PLEDGE.

I will send you the name of Fred Kester, who has used tobacco for five years. He says he will stop now for good; and if he uses it again, he will pay for the smoker; but should he again use it we will pay for it ourselves. He is only 17, and came to live with us in March; and as we always read GLEANINGS aloud he became deeply interested, and said if those who had used tobacco for so many years could stop, surely he could. Surely we can see the good effects of the Tobacco Column.

MRS. J. H. DABOLT.

Shirley, N. Y., May 14, 1889.

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Carniolan Queens & Bees a Specialty.

The co-partnership of Andrews & Lockhart is now closed, and the senior partner (who has bred those queens and bees for six years) will breed queens and bees from imported mothers, in the season of 1890, and will sell, the 1st of June, untested at $1.00; one-half dozen at $5.00; one dozen at $9.00. The tested, the 15th of June, $2.00; one-half dozen, 15th of June, $10.00. All queens above the untested will be put into one class, and sold as tested at $2.00, of next year's breeding. I expect to have queens of last year's breeding, which I will sell on the 10th of May, tested, $2.50; one-half dozen, $12.00. Send for circular.

1-6db JOHN ANDREWS,
Pattens Mills, Wash. Co., N. Y.

For Sale.—For cash, cheap, or trade for a good piece of land, from 50 to 200 colonies of Italian bees in the Quinby hive, and a few in Root's Simplicity. Too much work, with other business.

2tfdb G. HARSEIM, Secor, Woodford Co., Ills.

SEEDS FOR THE GREENHOUSE, GARDEN, AND FARM.

As a number of the friends in the South and Southern California are now sending in their orders for seeds, it reminds us that it is time to indicate our preferences, and to let you know what we feel like advising and offering for sale during 1890.

PRICE 5 CTS. PER PAPER; 10 PAPERS, 40 CTS.; 100 PAPERS, $3.50.

Seeds of new or rare vegetables and novelties, we include at the uniform price of 5 cents per package; but, of course, we are obliged to put a smaller number of seeds into such packages. This will be noticed with the Bush Lima Bean and Snowball Cauliflower, etc. Now, these 5-ct. papers are all sent by mail postpaid; but when you order seeds BY THE OZ., *or* LB., *you must pay 9 cts. extra for postage and packing on each and every pound of seeds ordered. Peas and beans by the pint and quart, must also have 8c per pint, or 15c per quart, added for postage; on corn, add 12c per qt. for postage. One-fourth oz., lb., or peck will be sold at oz., lb., or peck rates.*

ASPARAGUS.

Asparagus, Palmetto. Oz. 10c; lb. $1.50.
We have given this new variety a trial beside the Colossal, and it is certainly a stronger and more robust plant.

Asparagus Roots. Palmetto, 10 for 10c; 75c per 100; $6.00 per 1000. By mail, add 5c for 10, or 20c per 100.

BEANS.

Kidney Wax. ½ pt. 10; pk. $1.50.
This is an improvement on the ordinary Golden Wax Bean, in giving us larger pods, more perfectly free from rust; and last, but not least, if you can not sell all of them for snap-short beans you have a shell bean that is nearly equal in size and quality to the larger white kidney bean; and if you do not sell them all shelled, you have a good crop of dry, nearly all white, kidney beans. We consider it quite an acquisition.

White Kidney, Large. Pt. 10c; pk. $1.00. Bu., $3.25.
One of the best to use shelled, when green or ripe. We sell bushels of these at 10c a pint, shelled green. We market them in new pint strawberry-boxes.

POLE BEANS.

Extra-Early Lima Beans. These are fully equal to the old lima beans, and are fully as productive, and from ten days to two weeks earlier. We consider it an acquisition. Price 20c per pint, or $2.50 a peck.

King of the Garden Lima. ½ pt. 10c; qt. 30c; peck, $2.00.
These are fully as good as the common lima, and the pods are considerably larger, saving time in picking and shelling, as well as increasing the yield. We get 15 cents per pint for these, when green, shelled. See White Kidney bean above.

Henderson's New Bush Lima Bean. ½ pt. 40c; qt., $1.00; peck, $6.50. (Dwarf Lima, or Carolina.)

In our catalogue for 1889 we pronounced this the most important novelty for 1889. It is a genuine bush lima bean; but I do not see how a seedsman can conscientiously advertise it without mentioning that it is much smaller than the ordinary pole lima bean. In every other respect it is fully equal to the pole limas, and may prove a valuable acquisition to many who can not well go to the time and expense of providing poles. It is exceedingly prolific, each stalk or stem bearing from 50 to 100 pods, under good cultivation. The extra trouble of picking and shelling, in order to get them ready for the table, is the only drawback. We have them put up in 5-cent packages containing 10 beans.

All of our beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pt. or 15c per qt. for postage.

BEETS.

Eclipse. Oz. 5c; lb. 50c.
These have given us the best satisfaction of any thing we ever raised in the way of beets. They are a very quick grower, of excellent quality, and the appearance of the bright smooth scarlet bulbs is fully equal to any thing that has been pictured in the colored plates of our catalogues. In order to get a fancy price for them, start them in the greenhouse, and transplant when of the size of peas, or a little larger. They bear transplanting well, and are exceedingly hardy. Seed is of our own raising from selected roots.

Philadelphia Turnip. Oz. 5c; lb. 50c.
This is a little later and larger than the above, and is a novelty because of its alternate rings of dark and light pink.

Lane's Improved Sugar. Oz. 5c; lb. 35c.
The best variety for stock-feeding. It showed a larger per cent of sugar at the Experiment Station than any other analyzed. It is so sweet, that, when small, they are nice to eat raw. Has yielded as high as 20 tons to the acre.

Long Red Mangel. Oz. 5c; lb. 30c; 10 lbs. $2.50.
Yields enormously, but not so sweet as Lane's improved. Seed is of our own raising, from selected roots.

CABBAGE.

Select, Very Early Jersey Wakefield. *Stock seed.* Oz. 20c; lb. $2.50.
Our cabbage seed this year is raised by H. A. March, Fidalgo Bay, near Puget Sound, Washington Territory. Thousands of sample packages were sent out by us in 1888, and friend March's seeds ought to be pretty well known. The Early Jersey Wakefield, of the best selected strain, is fully as early as any other cabbage known, and greatly superior in quality. We have sold single heads at retail at 30c each, raised from plants started in the greenhouse in February.

Winningstadt. Oz. 10c; lb. $1.50.
Much like the Jersey Wakefield, but later and larger. The heads are round, and some of them are so hard as to seem almost like bullets. Our customers, many of them, greatly prefer these and Henderson's Early Summer cabbage to the later flat cabbages.

Louisville Drumhead. Oz. 10c; lb. $1.50.
One of the most uniform and surest-heading sorts tried at the Ohio Experiment Station. It is a little earlier than Flat Dutch, hence may be planted later; just the kind to plant after early crops.

Fottler's Brunswick. Oz. 20c; lb. $2.50.
This is one of the old staple varieties, and is perhaps planted as extensively as any one variety, from medium to late cabbage. Our seed was raised by H. A. March, the same as the Early Jersey Wakefield, and our entire stock is STOCK seed; that is, it is from the very BEST HEADS that could be selected out of a field of SEVERAL ACRES.

"Newark" Flat Dutch. Oz. 10c; lb. $1.50.
This is an improvement on the old standard Flat Dutch, and earlier. Pronounced by Brill "extra fine."

Excelsior Flat Dutch. Oz. 15c; lb. $2.00.
Pronounced by Brill the BEST LATE CABBAGE. During the past season this has given us the finest heads of LARGE CABBAGE we have ever grown.

Perfection Drumhead Savoy. Oz. 10c; lb. $1.50.
The Savoy cabbage is handsome in appearance, and richer and finer in quality, and STANDS FROST better, than any of the other varieties. In taste it nearly approaches the cauliflower.

Large Red Drumhead. Oz. 10c; lb. $1.50.
This is a red cabbage for pickling. The bright red, by way of contrast, will make a load or lot of cabbages attract attention, and there is always more or less demand for red cabbage for pickles. Heads are very solid, and SPLENDID KEEPERS.

CARROTS.

Early French Forcing. Oz. 10c; lb. $1.00.
These are small, but very early, and often bring a good price, because they are the first that make their appearance in the market. Bunched up with early radishes, they are very taking in appearance.

Orange Danvers, Half-Long. Oz. 5c; lb. 60c.
Yields well, and is easy to dig. The best sort known.

CAULIFLOWER.

Henderson's Early Snowball. Raised by H. A. March. ¼ oz. 75c; oz. $2.50.
Nice specimens of early cauliflower often bring extravagant prices, and it pays well to start them in the greenhouse, and use hand-glasses to forward them before the hot weather comes on.

CELERY.

Henderson's White Plume. Oz., 20.; lb., $2.50.
We place this at the head of the list, and especially for early celery. During the past season we had fine stalks on the market in July, and it sold readily at 10c each. The seed was started in the greenhouse about the middle of January. On account of its self-bleaching qualities it is better fitted for early celery than any other.

Golden Self-Blanching Celery. ¼ oz., 15 cts.; oz., 50c; lb., $5.00.
It is different from all others we have seen, in being not only more dwarf—i. e., shorter, but it is also thicker; in fact, the plant, when fully matured, is so thick and stumpy as to create surprise. The variety is also excellent, and the labor of banking up is not more than that of the White Plume. It is rather an early celery, and should be used soon after approaching maturity.

Golden Dwarf. Oz. 15c; lb. $2.00.
One of the standard sorts for a later crop. The golden tint of the head stalks makes it a very handsome vegetable.

Boston Market. Oz. 10c; lb. $1.50.
An old standard variety in and around Boston, and raised largely throughout the land. Never gets hollow and stringy.

Incomparable Crimson. Oz. 20c; lb. $2.50.
This seed was furnished us to try by Atlee Burpee, last year; and our verdict is, that it is not only the hardiest and best grower among the whole celery family, but, when properly bleached by being put away for winter, it has given us the finest and most delicious and crisp celery we ever tasted. Although it is a red celery when growing, when fully bleached there is hardly a trace of the pink color, but it is a beautiful creamy white. We place it at the head of every thing else for a LATE WINTER celery.

CORN (FOR TABLE USE).

Cory's Extra Early.
Corey's corn has not only proved to be the earliest by ten days or two weeks, but the ears are surprisingly large and fine; and the quality, if cooked at once, as soon as picked, is almost equal to any sweet corn we have. It is quite an acquisition.

Ford's Early Sweet.
Excellent in quality, and exceedingly early.

Late Mammoth Sugar.
This is excellent in quality, and gives ears of mammoth size, and is a wonderful yielder. Besides this, our strain is the SWEETEST sweet corn we have ever grown, and we have tested all the novelties that have been recommended. Our trade has been very large in this kind of corn for eight or ten years past.

Corn we sell at 5 cents for a half-pint package; but at this price purchasers must pay the postage, which is 3 cents for each half-pint. If wanted in larger quantities the price will be $1.00 per peck, or $3.50 per bushel.

Corn Salad. Oz. 5c; lb. 60c.
Sometimes called Lamb's Lettuce. It is to me a most delicious salad, something like lettuce, but having a peculiar rich flavor suggestive of cowslips and spring. It is very hardy, and will often stand out all winter. It does splendidly in greenhouses and cold-frames; is not attacked by the GREEN FLY.

CRESS, OR PEPPER GRASS.

Extra Curled. Oz. 5c; lb. 50c.

CUCUMBER.

Early Frame. Oz. 5c; lb. 50c.
The earliest cucumber.

Rawson's Improved Early White Spine. Oz. 25c; lb. $3.50.
This is the kind he uses for raising in his greenhouse, and the cucumbers bring 50 to 75 cents each, even where he raises them by the thousands. Fine specimens are wonderfully handsome and taking, and they sometimes grow to a great size without getting yellow.

Nichol's Medium Green. Oz. 5c; lb. 60c.

KOHLRABI.

White Vienna. Oz. 10c; lb. $1.25.
This is a quick-growing vegetable, half way between turnip and cabbage. If the plants are started in the greenhouse, the vegetable may be put on the market at the same time with the very earliest cabbages; and where people once get a taste of it, it is pretty sure to meet with a rapid sale at good prices.

LETTUCE.

Grand Rapids Lettuce. ¼ oz., 10c; ounce, 35c; pound, $4.50.
This is a new variety, developed in the vicinity of Grand Rapids, specially for greenhouse culture. It has been developed from the Black-seeded Simpson, by something like fifteen years of careful selection. It is superior and beautiful in appearance, a strong grower, very tender and crisp, and, so far as known, free from rot, and will keep from wilting longer while exposed for sale than any other variety known. At least fifty large greenhouses are now engaged in raising this kind of lettuce for market, in the neighborhood of Grand Rapids, Mich. For further particulars, see our new book, "What to Do," etc.

Boston Market. Oz. 10c; lb. $1.25.
The best variety of HEAD lettuce for greenhouse culture, as the heads are small, but compact and handsome.

Landreth's Forcing. Oz. 15c; lb. $2.50.
Excellent for hot-beds and cold-frames; exceedingly early. The heads are smaller than Boston Market.

Henderson's New York. Oz. 15c; lb. $2.00.
We consider this the best head lettuce for outdoor culture known. Even the chickens have discovered that it is of superior quality. They will run over our beds and pick out every head of New York lettuce, without paying any attention to any other kind.

Hanson. Oz. 10c; lb. $1.00.
An old standard variety, producing heads that sometimes weigh as much as 2 lbs.

MELONS, MUSK.

Extra Early Citron. Oz. 10c; lb. $1.00.
Always profitable because of its extreme earliness.

Casaba, or Persian Muskmelon. Oz. 5 cts.; lb. 60c.
A standard large variety.

Montreal Nutmeg. Oz. 5c; lb. 60c.
Large size, beautiful looking, very small cavity for seeds, and one of the very best.

Pine Apple. Oz. 5c; lb. 60.
Excellent in quality, and only medium in size.

Banana. Oz. 5c; lb. 75c.
I consider this one of the best muskmelons it has been my fortune to taste. They are long like a rail, or like a banana, if you choose; but the color is strikingly like a banana, and what is more wonderful still, it has an odor also like the banana.

MELONS, WATER.

Phinney's Early. Oz. 5c; lb. 60.
The quality is very good, but the size is not very large.

Landreth's Boss. Oz. 5c; lb. 60.
A melon that seems to combine more of the good qualities for a large late watermelon than any other.

ONION.

Mammoth Silver King Onion. Pkt., 5c; oz., 20c; lb., $2.50.
We first procured this seed from William Henry Maule. To get the onions early, the seeds are started in a box in a greenhouse. When about two inches high they are planted out as you would plant out cabbage or celery. During August and September we have onions larger than any in our locality; and as we sell them by the pound, many of them bring 10 cts. each. We regard them as an acquisition.

Extra Early Red. Oz. 15c; lb. $2.00.
Medium size, red, and an excellent keeper.

Silverskin, or White Portugal. Oz. 25c; lb. $2.50.
A standard variety for pickles, or for handsome bunch onions. Better flavored than the dark-skinned.

Yellow Globe Danvers. Oz. 15c; lb. $1.75; 5 lbs., $1.50 per lb.; 10 lbs., $1.40.
A standard yellow variety. The best of all to grow from seed. It makes a wonderful difference, however, how the seed is grown. Some strains will give nearly double the crop that others will. Our seed for this year was grown by a near neighbor, the father of W. J. Green of the Experiment Station, Columbus, Ohio.

White Victoria. For the present, only in 5-cent packages.
We regard it as an acquisition for bunch onions, from the fact that the bulbs, when grown in muck, are of a pearly whiteness, and need no peeling at all. If sown tolerably thick, you can pull them by the handfuls. Tie a string around them, swish them in a bucket of water, and they are ready for market. If sown early, we get 5 cts. for a ½-lb. bunch.

ONION SETS.

We have those of Yellow Danvers and Silverskin.

Prices, of yellow, 15c per quart; $1.00 per peck, or $3.00 per bushel. Silverskin, one-half more than above prices. Large-size sets (often used for pickles), one-half the above prices. By mail, 10 c. per qt. added.

Winter, or Egyptian Onion Sets. Prices, 10c per qt., or 75c per peck. By mail 10c per qt. extra.

This onion does not produce a bulb at all, or at least only a very inferior one. All it is raised for is its long succulent stalks, with a sort of root, or small bulb, on the lower end. It has such an inveterate habit of growing that it grows any time when in the ground or out of it; and, in fact, almost the only place to keep it is IN the ground. During August and September the sets may be gathered and sown. You can, with care, keep them over winter. The sets grow in the form of little onions, on the top of the stalk, like the old-fashioned onion-sets we used to see when we were children. We gather these sets as soon as they are ripe, say about the middle of August; then we sprinkle them in a drill, about as we would peas, say from three to five inches apart.

PARSNIP.

Bloomsdale. Oz. 5c; lb. 40c; 10 lbs., $3.00.

This is the only kind we have, but we consider it equal to any.

PARSLEY.

Fine Curled or Double. Oz. 5c; lb. 50c.

PEAS.

Landreth's Extra Early. ½ pt. 5c; pk. $1.50.

We consider this equal to any for the first peas of the season. It yields its crop in a very short time. Not equal in quality to the American Wonder.

Alaska Peas. ½ pt. 5c; peck, $1.50.

This pea is not only the earliest of any thing we have ever tried, but, strange to tell, it is also of a delicious quality, very productive, and an excellent pea in every respect, except that the pods look ready to pick before the peas inside are large enough to amount to any thing. If you pick them when they LOOK plump and full you will disappoint your customers, and have trouble. Get careful pickers; tell them not to pick a pod until they know by squeezing it that there are good-sized peas inside, and you will then call it, as we do, ahead in QUALITY of any other EARLY pea in the world.

American Wonder. ½ pt. 10c; pk. $1.75.

This is a cross between the Champion and the Little Gem. The vine grows from 6 to 8 inches high. It is the first to ripen among the green wrinkled sorts. On account of its dwarf habits it can be grown very easily under glass.

Stratagem. ½ pt. 10c; pt. 20c; pk. $1.75.

This has made its way rapidly in public favor. It is not only of rare excellence in quality, but the pods and peas are so large and fine looking they call attention at once from any thing else in the market. It has given us excellent satisfaction.

Champion of England. Pint, 15c; pk. $1.50: bushel, $5.50.

So well known as to need no recommend here.

Marrowfat. ½ pt. 5c; pk. 75c; bu. $2.50.

One of the most desirable and well-known late sorts.

Peas by mail will be at same rate as beans for postage.

PEPPERS.

Spanish Pepper. Oz. 25c.; lb. $3.00.

A new variety, so large that the natives of warm climates slice them up and fry, as an article of food.

Bullnose. Oz. 25c; lb. $3.00.

A larger variety than the above, but in every other respect the same.

Cayenne Pepper. Oz. 25c; lb. $2.50.

Much called for, for seasoning soups, pickles, etc.

POTATOES.

Early Ohio.

The Experiment Station, Columbus, O., says there is nothing earlier.

Early Puritan.

Nearly as early as Early Ohio, and much more productive. Highly recommended by our Ohio Experiment Station. Prices: 1 lb. by mail, 25c; 3 lbs. 60c; 1 peck by express or freight, 50c; 1 bushel, $1.50.

Lee's Favorite.

This is a few days later than the foregoing, but yields better still. In our locality during the past season it has given us over 100 bushels, from one-fourth of an acre.

Empire State.

This, the Experiment Station considers as good a late or medium late potato as any before the public. They decide that the above four varieties are the cream of the list.

Beauty of Hebron.

This is preferred by Terry because it gives as good, or better yield than any other, and comes off early enough to admit of getting in wheat in good time. It is a standard early sort.

Prices of any of the above, except Early Puritan: 1 lb., by mail, 15 cts.; 3 lbs., 40 cts.; 1 lb., by express or freight, 7c; 1 peck by express or freight, 35 cts.; 1 bushel, $1.00. Barrel, $2.75.

Potato-eyes. Any of the above varieties by mail postpaid, 15c for 10; or 75c per 100.

PUMPKIN.

Early Sugar Pumpkin. Oz. 5c; lb. 75c.

This was selected from 13 different kinds of pumpkins last season. They are small, somewhat cheese-shaped, handsome in color, and sell on our market-wagon readily at the same price as Hubbard squashes. They are specially designed for the first pumpkin pies of the season.

Connecticut Field. ½ pint, 5c; quart, 15c; peck, 75c; bushel, $2.00. If wanted by mail, add at the rate of 16c per quart for postage.

RHUBARB.

Either Victoria or Linnæus. Oz., 10c; lb., $1.50.

RADISHES.

Early Scarlet Globe. Pkt. 5c; oz. 10c; lb. $1.00.

This is the radish that Vick gives such a beautiful chromo of in his catalogue for 1888; and for forcing in the greenhouse, it is ahead of any other in the way of forcing radishes. They begin to form a bulb almost as soon as the second leaves come out. They are very hardy, and of exceedingly rapid growth.

Wood's Early Frame. Oz. 5c; lb. 60c.

The very best long radish for raising under glass, or for extra early.

White-tipped Scarlet Turnip. Oz. 5c; lb. 60c

A fancy variety of the scarlet bulb with white bottom; very showy.

Lady Finger. Oz. 10c.; lb. $1.00.

One of the standard long radishes. Sometimes it grows as large as a parsnip, and yet is of excellent quality.

Beckert's Chartier Radish. Oz. 5c.; lb. 50c.

A novelty, and one that has given us the greatest satisfaction; of rapid growth and good size, both at the bottom and top. In favorable soil it will grow to a large size, and still be excellent in quality. They are remarkably certain to make a good bulb.

Chinese Rose Winter. Oz. 5c; lb. 60c.

These not only stand cold weather until toward Christmas, but we consider them really a most delicious radish, and the most free from being corky, of any radish known. They are not as strong as radishes ordinarily are, but are of a sweet turnip flavor.

SALSIFY, OR OYSTER PLANT.

New Mammoth. From Sandwich Islands. Oz. 10c ; lb., $1.50.

We have grown this side by side with the common salsify, and we find the roots larger, better shaped, and equally good in other respects; they are, therefore, without question an improvement.

SPINACH.

Bloomsdale Extra Curled. Oz. 5c; lb. 35c.

It combines as many of the good qualities as any other.

SQUASH.

SUMMER VARIETIES.

Early White Bush, or Patty Pan. Oz. 5c.; lb. 60c.

Not surpassed by the Golden Summer Crookneck. One of the old staples.

Golden Summer Crookneck. Oz. 5c; lb. 50c.

The standard summer squash.

WINTER VARIETIES.

Perfect Gem. Oz. 5c; lb. 50c.

A round squash, about 6 inches in diameter. The quality is excellent, and it will keep till spring.

Hubbard. Oz. 5c; lb. 60c.

Too well known to need comment. We have tried nearly all the new squashes, but have not yet found a better one.

Boston Marrow. Oz. 5c; lb. 50c.

An old standard staple, especially in and around Boston.

TOMATO.

Dwarf Champion. Oz. 25c; lb. $3.00.

This is a great acquisition for an EARLY tomato. It is not only very early, but the shape is equal to any of our best kinds, and it stands up without staking, on account of its strong stalk. They are smooth and handsome, and ripen all over nicely, quite a little ahead of the Mikado.

Lorilland. Oz. 40c; lb. $5.00.

We have tried this, and it seems to be the best adapted for greenhouse culture of any we have ever got hold of. It is also a very nice tomato for growing in open ground; nice in shape, handsome in appearance, and as early as any.

Golden Queen Tomato. Pkt., 5c; oz., 25c; lb., $3.00.

This is no special novelty, that I know of, over other tomatoes, except its beautiful golden yellow color; but at the same time the tomato is good-sized, and remarkably smooth and regular. The quality is equal to any. Many specimens of the fruit have a rosy tint toward the blossom end, giving it something the appearance of a beautiful yellow peach with a slight blush of red.

Ignotum Tomato. ¼ oz. 30c; oz. $1.00; lb. $12.00.

During the year 1889 we sent out about 3000 sample packages of the Ignotum tomato; and the general testimony of those who have grown it corroborates the decision of the Michigan Agricultural College, that it is, all things considered, the best, and they gave it a test side by side with over 100 different varieties. It has no rival that I know of in size,

except the Mikado. There are, however, several kinds (among them Livingston's Beauty) that are rather handsomer in shape, but they are behind in size and earliness. In solidity the Ignotum is behind none; and for slicing up for the table we have never found any thing better.

Mikado. Oz. 25c; lb. $2.50.
Until we got hold of the Ignotum, the Mikado was our preference for an all purpose tomato; and even now it is the largest tomato we have ever got hold of. It is also nearly as early as any. Its only defect is, that a great part of the fruit is irregular in shape. Notwithstanding this, while you can get tomatoes by the bushel, weighing from a pound to a pound and a half, they are sure to be in demand on account of the time saved in preparing them for the table, or for canning. Besides, it is but a few minutes' work picking a bushel, compared with most other kinds. The shape of the leaf distinguishes it from all other kinds.

Acme. Oz. 20c; lb. $2.00c.
Too well known to need comment.

Trophy. Oz. 20c; lb. $2.00.
A companion to the Acme.

Livingston's Beauty. Oz. 20c; lb. $2.00.
This is a production of the same Livingston who brought out the Acme, Trophy, Favorite, and Perfection; but he pronounces this superior to them all. They are better shaped and smoother than the Mikado, but not so large.

Pear-Shaped Tomatoes. Oz. 20c; lb. $3.00.
These are handsome for pickles and preserves. We have them of two colors—red and yellow. They are immense bearers, and of good quality.

TURNIP.

Extra-Early Turnips.

We have tested some of these which are advertised in the different seed catalogues; and while we find them as represented, much earlier than the staple turnips, they are, so far as we have tested them, inferior in quality, very strong in taste, and sometimes bitter.

Purple-top White-globe Turnip. Oz. 5 c.; lb. 40 c.
This turnip has given us the best results of any thing we tried; the quality seems to be unusually fine for table use, especially when they are about as large as fair-sized apples. They grow nearly as quick as any other turnip known, and are very handsome. When washed they are almost as white as an egg, with a beautiful purple around the top. They are smooth and round.

Yellow Aberdeen. Oz. 5c; lb. 40c.
We consider this the best table turnip grown. When cooked it is so yellow that it will sometimes be mistaken for squash.

Bloomsdale Swede. Oz. 5c; lb. 50c.
Perhaps the best of the Rutabaga varieties.

Southern Prize. Oz. 5c; lb. 50c.
For many years I have wondered if it were not possible to get a real turnip as strong growing and as hardy as the Seven-top. This we have finally secured, in the "Southern Prize." It stands all winter, even in Ohio, without protection: and, in fact, it seems to GROW all winter; and, best of all, it has a good-sized bulb (of fair quality) that winters over as completely as a parsnip.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—This market has been dull all the fall and winter; perhaps owing to the weather a great deal, and the condition of trade generally. We did get 13@16 for fancy honey up to Dec. 15. Then the only honey that was in demand was low-priced goods, such as old stock, and buckwheat, and dark. Now the market is nearly cleaned up on that stock, and they must haul on the better goods. We are satisfied that we can sell all we have before spring at 10@12 for good; and 12@14 for fancy. Market quiet. WALKER & MCCORD,
Jan. 9. 32 & 34 So. Water St., Philadelphia.

CINCINNATI.—*Honey.*—The very mild winter, apparently has a depressing effect on the honey market, more especially on the sale of comb honey. Best white comb honey is offered at 14@16 in the jobbing way. But concessions have to be made to effect sales. There is a fair demand for extracted honey at 5@8 on arrival. *Beeswax* is in good demand at 20@22 on arrival for good to choice yellow.
Jan. 8. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

ALBANY.—*Honey.*—We are still receiving occasional lots of both comb and extracted honey; but the market is very dull at present, and stock is moving slow, especially comb honey. There is considerable demand for extracted. We quote clover, 12@14; buckwheat, 9@11; mixed, 10@11. Extracted, clover, 8@9; buckwheat, 6@7.
Jan. 9. C. MCCULLOCH & CO.,
339 Broadway, Albany, N. Y.

COLUMBUS.—*Honey.*—Honey is selling at 15 for white clover, if strictly first-class. No demand for dark or poorer grades. We are selling more honey at this time of year than during any previous season. Our stock is pretty well cleaned up, and a consignment or two of nice stock could be easily sold. The demand for extracted honey is light, with little on hand. EARLE CLICKENGER,
Jan. 8. Columbus, Ohio.

CHICAGO.—*Honey.*—Sales during December (especially the latter part) were very light, and have continued to be of small volume up to this writing. The stocks are quite large, and prices low, with nothing to indicate an advance. Best grades of 1-lb. sections, white comb, 12@13; dark, 8@10. Extracted, 6@8. *Beeswax*, 23. Weather is mild.
Jan. 8. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Comb honey in good supply; sales slow at 12@14. Extracted, 7@8. *Beeswax*, firm at 24@25. M. H. HUNT,
Jan. 9. Bell Branch, Mich.

NEW YORK.—*Honey.*—No demand for comb honey, with a good stock on the market. We quote: Fancy white, 1-lb., 12@14; 2-lbs., 11@12; off grades, firm, 9@12. HILDRETH BROS. & SEGELKEN,
Jan. 9. 28 and 30 West Broadway, N. Y.

ST. LOUIS.—*Honey.*—Market quiet. We quote: Choice white clover, comb, 14@16; inferior, 12½@13. Extracted and strained, cans, 7@8; barrels, light colored, 5¾@6. Dark, 5@5¼. *Beeswax*, prime, 22.
Jan. 9. D. G. TUTT GROCER CO.,
St. Louis, Mo.

KANSAS CITY.—*Honey.*—The demand for honey is still light. We quote: White, 1-lb. comb, 12½@13; 2-lb., 11@12; amber, 1-lb., 11@12; 2-lb., 10@11. Extracted, white, 7@7½; amber, 5@6.
Beeswax, 22. CLEMONS, CLOON & CO.,
Jan. 9. Kansas City, Mo.

SAN FRANCISCO. — *Honey.* — Extracted honey, white, 6½@7; light, 6¼@6½; amber, 5¾@6¼. Comb honey, 1-lb. sections, white, 13@12; light, 12@11. New sections, 13@10. *Beeswax*, 20@21.
Dec. 27. SCHACHT, LEMCKE & STEINER.
16 & 18 Drum St., San Francisco, Cal.

BOSTON.—*Honey.*—Sections, 1-lb., 16; 2-lbs., 15. Extracted, 7@9. *Beeswax*, 23. Trade dull.
Jan. 9. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

FOR SALE.—Ten 58-lb. cans of choice clover honey, at 8 cts., and 1000 choice white comb in 1-lb. sections, 14-lb. in a crate. Price 14 cents delivered on cars.
DR. LARCH, Deer Park, Boone Co., Mo.

FOR SALE.—1000 lb. of basswood and clover honey, with a slight mixture of autumn honey, in pails holding 7½ pounds. Boxed and delivered at Waverly, Ia., at 65c per pail. J. B. COLTON,
Waverly, Bremer Co., Iowa.

FOR SALE.—About 1600 lbs. of clover honey, in 1-lb. sections. I will sell at 11c per lb. here, on track.
JOSEPH MCGREGOR, Earlville, La Salle Co., Ill.

Get honey direct from the producer. Send for reduced prices of filled sections, pails, cans, etc.
OLIVER FOSTER, Mt. Vernon, Ia.

FOR SALE.—900 lbs. of white comb honey, in 1-lb. sections, 24-lb. cases. I want 13c on board cars.
H. HATCH, Lowell, Kent Co., Mich.

FOR SALE.—About 2500 lbs. No. 1 clover honey in 60-lb. cans. F. O. B. here at $4.80 per can, boxed singly. In kegs or large lots, less. R. L. TUCKER,
Nevada, Vernon Co., Mo.

FOR SALE.—About 1000 lbs. of first-class white-clover honey, put up in 60-lb. tin screw-top cans. Sample sent on application.
M. W. HARRINGTON, Williamsburg, Iowa.

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THICK OR DEEP TOP-BARS FOR PREVENTING BRACE-COMBS.

A VALUABLE ARTICLE FROM THE PEN OF JAMES HEDDON.

MR. ROOT:—I was not only somewhat interested but considerably surprised in noting in your last issue the excitement and enthusiasm manifested by some of your subscribers upon the above subject. As it is one which I have had much experience with, and which I have written one or more articles concerning, I think in some back number of GLEANINGS and *American Bee Journal*, which I see you have forgotten, and your latter-day subscribers have never seen, let me give you a little history concerning deep top-bars, and also state that, while it is a fact, as I stated years ago in public print, that they do tend to lessen the amount of brace-comb which will be built, and have a still stronger tendency to produce nice straight combs, they can not be relied upon to take the place of a honey-board, as your correspondents believe. I state this as the result of many experiments, and will say that I now have hundreds of these deep top-bars in use in my apiary, and by this mail I send you a sample taken from one that I now have in stock. Were I at the apiary I could select one for you just like it, which has comb and the rest of the frame attached. Let it not be forgotten, that, at the time I brought forward the idea, a great kick was made against using so much wood and occupying so much of the brood-chamber space with wood instead of comb. It is strange, that, when some bee-keeper comes forward with something new, claiming superiority for it, that such frivolous arguments as "too much wood," "too much bee-space," "too many sticks," etc., are at once raised. But, now for that history:

Twenty-two years ago, when I first began to pay attention to bees and bee-hives, and when the famous K. P. Kidder, of Vermont, was selling hives all over this country, either in person or through agents (Mr. A. C. Balch, of Kalamazoo, can tell you something about it, as he was an ardent admirer and user of the Kidder hives), I saw in Mr. Kidder's hive two styles of top-bars, and one of them was one of these deep bars with the V, which was made on the bar with a molding-machine. This bar must have been made of 1½-inch pine, as the side of the bar ran down perpendicularly for at least ⅞ of an inch before the bevel began. It seems to me that any one of our older and experienced bee-keepers of to-day should know enough of the instincts of bees to know that such deep top-bars would have a tendency to both lessen the building of brace-combs and guide the bees to straighter comb-building, where no foundation or only foundation-guides were used. Do not misunderstand me. The comb may be all within its frame, and the top part of it straightly attached to the board, and still the comb may not be what I call straight; that is, smooth and level, like a board. These deep bars have a tendency to produce such combs.

Mr. Kidder experimented regarding the distance apart these top-bars should be placed, putting ⅞ bars so close together that ten of them occupied 14 inches. Friend Looft, on page 18, says it is a wonder that so few bee-keepers have tried such top-bars, and asks people to report from actual experience. As I used hundreds of them before I invented the honey-board, and as I did report regarding them years ago, and got a rebuff at every corner, and I found them only favorable to *reducing* brace-combs, and not by any means equal to the honey-board, I will let that answer friend Looft's query. Mr. Bingham has used such top-bars, ⅞ of an inch square, for many years, and at the same time used some of them turned cornerwise, one corner up

and one down; consequently one to the right and one to the left. You may know, that, when so turned, brace-combs were plentiful. Years ago Mr. Bingham told me he did not know which way he preferred them. Mr. Looft uses a very shallow frame, and no one will be troubled with brace-combs as badly with a frame six inches deep as with one the depth of the Langstroth, the reasons for which I have explained in another article. Mr. Looft talks as though from their use there was never any trouble with brace-combs between two supers on the hive. Most bee-keepers know that bees build plenty of brace-combs between two sets of frames containing comb. But, again, where the frames are as shallow as Mr. Looft talks of, much less brace-comb will be built.

Mr. F. L. Smith quotes Dr. Miller as saying that honey-boards, even the break-joint, will not prevent the building of brace-combs above them; but Mr. Smith forgets to state that Dr. Miller is the only person who has reported failure in that line; and if GLEANINGS will ask for a one-line report from those using them, I am confident we shall see 99 saying they will, to every one saying they will not; and then if they will go into the deep-top-bar busi- they will have good frames, and like the deep top-bar, finding that they will decrease the number of brace-combs built above them and below the honey-board, but are nowhere nearly equal to the honey-board as a practical preventive of all brace-combs. Friend Smith's statement, that there is a method of preventing brace-combs without the use of thick top-bars or honey-boards either, he emphasizes strongly, and then tells us how it is done. Simply by properly adjusting frames and supers. Then he goes on to tell us how to properly adjust them; and, Mr. Editor, will you please put me on record as strongly emphasizing the statement, that neither this adjustment described by Mr. Smith, nor any other, will prevent the troublesome building of brace-combs when conditions are favorable for that work, but the honey-board will? Perhaps Mr. Smith does not know that, when any bee-space is contracted to a distance *less* than $\frac{5}{16}$, bees will build brace-combs in it worse than in one larger. Do you not remember, friend Root, about the experience Bro. Hutchinson and I had in making wooden queen-excluding honey-boards? Father Langstroth was right; and not only himself, but many of us who have come after, have proven him right, in declaring that $\frac{5}{16}$ is the best passageway for bees, in which they will place less glue and brace-comb than in any other bee-space. Mr. Smith is correct in his statement, that lots of brace-combs will be built in a $\frac{3}{8}$ bee-space.

A little further on Bro. S. speaks about a proper distance apart for frames, and quotes friend J. E. Pond regarding what he has had to say in the past, about crowding frames close together. Now, bees will build more brace-combs between these deep top-bars if placed very close together than if placed scant ⅜ of an inch apart; and this is not all. There is another and more important feature in connection with this close spacing. I remember spending several hours with friend Bingham upon this subject, after having exchanged several letters regarding it. We brought up and discussed points that have been entirely overlooked and not mentioned by Mr. Pond and others upon the same subject. These closely spaced frames do give some of the results claimed by their advocates, but they are not as safe for wintering as those placed further apart. I should prefer 1½ inches for them to winter in; but I do not allow that much, because I prefer less for summer. I split the difference between what I believe to be the best winter and the best summer distance, placing eight frames in just 11½ inches. Divide 11½ inches by eight, and you have the exact distance we use. When any one tells your readers that the practical honey-producer of the future will use one distance in summer and another in winter, please laugh at him for me. That will never be. My experience differs from that of friend Smith, I preferring scant ⅞ to one inch for the width of top-bars. In fact, I have tried all of the conditions, all at once, asked for by Bro. Smith, and it will not prevent brace-comb building when the bees are much inclined, but the break-joint honey-board will.

Brother S. A. Shuck is disgusted with light top-bars. Here is my hand, Bro. Shuck. I have been disgusted with them for many a day, and especially with those sent out by our good friend Root, "so as not to have so much wood in the frames." Don't be afraid of distance between brood and the surplus sections, provided that distance is made up of wood, space, or any thing else above the heavens or below the earth, *except sealed honey*. Look out for that. Just here is where bee-keepers have been deceived. It is not the distance from the brood to the surplus receptacles, but it is the pesky *sealed honey* that makes the bees reluctant to enter. We have tried it on a large scale with as many as three honey-boards in each hive, all breaking joints with each other. Others have tried the same three honey-boards, and all report that the bees enter the sections with them as readily as where but one or none is used.

Now, we wonder if friend Alley means deep top-bars by the words "wide top-bars." If they are wider than ⅞, they are just that much worse for us. I can assure Bro. Alley, that, in this locality, his wide top-bars will not work.

Why does Mr. Kildow speak as if 1⅛-wide bars were something new? That is the old idea father Langstroth gave us, and all of our older bee-keepers know that it is not nearly as good as ⅞. I will conclude by saying that I have had so much experience, and that, too, on a large scale, and for the express purpose of making the best hive arrangement possible (the mechanical construction of the bee-hive having been my greatest hobby for twenty years), that I believe I am warranted in declaring that the best of all arrangements to practically prevent the burr-combs, or brace-combs, is the break-joint honey-board. Further, in order to have the least brace-comb between the brood-frames and its honey-board or the cover, or any thing else that rests above them, use a top-bar ⅞ of an inch wide and ⅞ of an inch deep. It will not sag, dangerously increasing the bee-space above it. There is no appreciable objection to its use in most hives.

I really can not afford the time to look over back volumes, and call your attention to the exact places where I have dilated upon this subject before; but one of my bee-boys calls my attention to page 159 of the *American Bee Journal* for 1879, where I gave a cut of my modification of the Langstroth hive, which was my preferance at that time, and in connection with my description the following sentence occurs:

"The top-bars of the movable frames are heavy, and their sides run straight down ⅝ of an inch before the bevel commences. I know that this shaped bar gives truer combs and fewer brace-combs between their tops and the honey-board or surplus receptacle."

And at this time I had many of the ⅞ bars in use; and the reason why I advocated the ⅝ depth before the bevel commences was because such a bar, V bevel and all, could be made of ⅞ lumber.

I am pleased to write the above on this subject, because it is one I have long felt I understood thoroughly; and I will say, that all bee-keepers who think they are going to master the brace-comb difficulty without a honey-board will find their mistake a little further on. JAMES HEDDON.

Dowagiac, Mich., Jan. 8.

WIDE TOP-BARS AND BURR-COMBS.

A VALUABLE ARTICLE ON THE SUBJECT.

IN the Jan. 1st issue, page 20, you ask, "Is it necessary to have top-bars ⅞ thick, if they are 1⅛ wide?" I answer, "Yes, without any ifs or buts or wherefores." I first began using ¾-inch, then ⅞, then 1¼, and a few hives 1⅜, and a few even stretched that width; but every thing over 1¼ was soon relegated to the woodpile, while the 1¼ stayed around a good while. Some of them are here yet, but are too wide for the best results. My experimental stage covered a period of about ten years, during which time I scarcely made hives twice alike, certainly not any two seasons. Now for results: As to width of top-bars, every thing above 1¼ was wholly unsatisfactory; of the 1¼, most of them worked all right. If new swarms were hived in them during extremely hot weather, each comb would be in its proper place; but if the weather was cool, then there was trouble at once. The bees seemed to work in closer quarters, and would put three combs on two frames, or go crosswise of the whole, so I gave up the 1¼; and after all others had been thoroughly tried I settled down to 1⅛ as the nearest right, and $\frac{5}{16}$ to ⅜ the proper distance apart. For thickness I used ⅞ of an inch, beveled shape, so that they are ⅜ thick at the edges, making a top-bar that will not sag down as a flat ⅜ piece will. Then, too, bees will make a stronger comb on a V top-bar than on a flat one; but it lets them up so near the top that they will build burr-combs between and on top of the frames, about 98 times out of every 100; and I guess it is only a mistake that the other two don't do it, and they will make some burr-combs on top of ⅞ frames if they are much over ¼ inch apart; and at that distance they are quite apt to fill the whole space nearly solid with bee-glue or a single row of cells seemingly stuck up endwise between frames, with now and then a hole just large enough to pass one bee up or down.

Now, brethren of the bee-fraternity, don't be in too great haste to get rid of your honey-boards, as I once was, for I went and made racks for all my hives, about 15 years ago, which were used on the T-tin principle, only my tins were made of wooden strips nailed into the bottom of the rack, and then strips of tin nailed on to them to support the sections (and glass boxes in the same way, before sections came into use); they came down close to the top-bars; but after using them two or three years I went back to the honey-board and rack combined, which I now use. E. M. JOHNSON.

Mentor, O., Jan. 6, 1890.

Thanks for the information you give, friend J. I am the more glad of it because of its caution. I would not advise any one to discard the honey-boards just yet. Let each one, if he chooses, try a *few* hives with thick top-bars, and first ascertain whether his hive, his locality, or himself, justifies the change. It is no doubt true, that thicker and wider top-bars largely discourage the building of burr-combs. It is equally true, that they do entirely *prevent* it in many cases, if the testimony of several witnesses can be relied on as true, and there is no reason to think that it can not. In the mean time, let us have more facts from others. It is a very important subject, and it is well worth sifting down, both pro and con. Remember, we want the cons as well as the pros. ERNEST.

THE BRISTOL HIVE.

ITS CONSTRUCTION, AND SOME OF ITS FEATURES, AS DESCRIBED BY THE INVENTOR, A. E. MANUM.

As the Bristol hive is now so extensively used in New England, a description of it may not be uninteresting to some of your Western readers; and to assist me in describing it with its different parts, I have made a photograph of it, which I inclose.

1. On the right is a Bristol hive put together just as it appears both in summer and in winter, when closed, except that the winter entrance-slide is drawn out and leaned against the front of the hive; and on the top of this hive will be seen one of my cushions, such as I use over the bees in winter.

By the side of this hive, standing on the ground, is a brood-chamber, D. This brood-chamber is 16¾ long by 13¼ wide, and 11 deep. The sides are cut 16¾ long by 11 wide, and the top edge is rabbeted ⅞ x ½, with a saw-kerf cut in one edge of the shoulder, to admit of the metal frame support, or tin rabbet. The kerf is cut ⅜ deep; and by using ⅝ hoop iron it allows the iron to project ¼ inch; and the top-bar of the frame being $\frac{5}{16}$ thick, it therefore leaves $\frac{5}{16}$ space between the upper surface of the top-bar and the under surface of the honey-board. The ends of the brood-chamber are cut 15 in. long by 11 wide. In giving the dimensions of any piece of lumber I always call the length the way the grain of the wood runs; and as the stock is ⅞ thick, and the end-pieces nailed on to the ends of the sides, it makes the box 13¼ wide inside.

On the top of the brood-chamber you will observe a Bristol clamp, E, filled with sections; and I believe it is the most convenient clamp in use, as you see this clamp covers only half of the brood-chamber, two clamps just covering it. But when two are not needed, as in the early part of the honey season, or at the close of the season, only one clamp may be used when one of the half honey-boards, H, is used in place of the second clamp; thus giving the bees no more surplus room than they require, and being able, with these small clamps, to give the bees more room as they require it, or reduce it by degrees, thus keeping pace with the honey-flow at either end of the game.

The stand, A, shows for itself how it is made. The top of the stand is 22 inches square, and the in-

side bottom edge of the outside case is rabbeted so that this rests on and over the outside edges of the stand. The top of the stand is the bottom of the brood-box as well as that of the outside case. The stand in the picture having been used, it shows very plainly where the brood-box rests. The entrance is also seen from the top of the stand. This entrance is 14 inches long by 1¼ wide; but by the use of the entrance-slide it can be reduced to 2 in. long by ⅜ wide, this being the size of entrance allowed the bees in winter.

At A is the alighting-board, which forms a bridge over which the bees walk up to the entrance. The entrance, as will be seen, is under a portico, and therefore protected from the rain and snow and winds, and is directly under the brood-chamber. At the corners of this portico there are "gumps" upon which the slide rests when in use; but in summer, when not in use, it is laid under the hive from the back side of the stand, which is open, forming a shed or storeroom where articles are kept when not in use, such as honey-boards, division-boards, slides, etc.

The outside case, B B, is made in two parts, just alike. The sides are 24 inches, and ends 22¼ by 9 inches wide, by ⅞ thick. The cap F has sides and ends of the same length as the body; and as all are so rabbeted that one rests over the other, water can not get inside the hive. Any degree of pitch may be given the roof. I cover the roof with patent clapboards, as they are plentiful and cheap here, and they answer a very good purpose.

On the top of the outside case rests an empty Bristol clamp edgewise, E, on the top of which may be seen one of my bee-escapes, which I have used 15 years or more. These escapes are also seen at the gable end of the caps, where I use them principally.

J is a Bristol separator, and K is the follower, which, by the aid of the thumb-screw, just below E, holds the sections in place.

The Bristol frame, 12 x 9¼ inside measure, stands just below the separators.

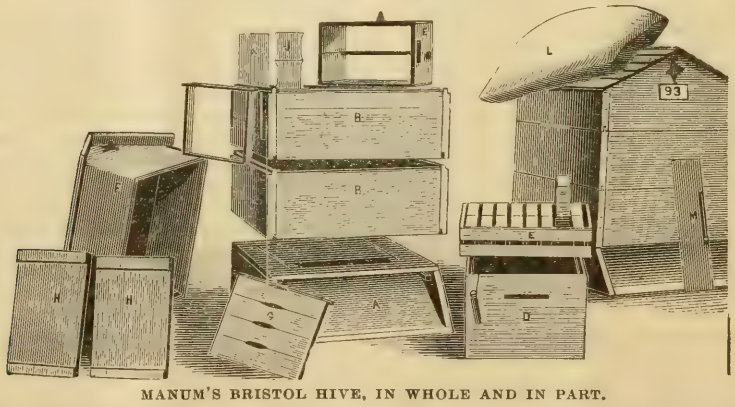
G is a division-board feeder, which answers as a division-board, and also a feeder in early spring, when obliged to feed syrup, and also to feed nuclei when necessary. The feeder is filled, and placed in the brood-chamber by removing a comb. The feed is then near the cluster of bees, and out of the way of robbers.

H H is the honey-board (brood-box cover) in two parts. I prefer to have these in two parts on account of the convenience in using one of the halves to cover the brood-chamber when one of the clamps has been removed from the hive.

L is a sack made of cotton cloth, and filled with chaff or planer shavings, which answers as a cushion to cover the bees with during winter. It takes 1½ yards of yard-wide cloth to make one of these sacks; and when properly filled it just fills the outer case of my hive.

Hanging to the brood-chamber D, is seen one of my round queen-cages, made of tinned wire cloth. At each end of this is soldered a tin band to keep the wire in shape; and at one end there is an arrangement into which feed may be placed for the queen, and at the other end a cork is used as a stopper. I call these "pocket cages." They are very convenient to carry queens in from one apiary to another, packed in the pocket. In the summer season I always have a few of these cages in my pockets; and when I wish to remove a queen for any cause, I run her with a few bees into one of these cages, and put them into my pocket, where I sometimes keep them one or two days; and when I visit one of my out-apiaries, and find the man there in need of one or more queens I find it convenient to be able to draw on my pocket for them.

Bristol, Vt., Dec. 4, 1889. A. E. MANUM.



MANUM'S BRISTOL HIVE, IN WHOLE AND IN PART.

Very good, friend M.; but I fear your description is rather brief for some of us. Having the entrance underneath the hive is one of my old hobbies. It was discussed considerably ten or twelve years ago. When the Simplicity hive is pushed forward over the bottom-board it amounts to pretty nearly the same thing, especially when we make the entrance to a powerful colony large. I am glad to know that you prefer to have the outside cases rabbeted, or beveled, so as to keep out the wind and rain. I believe it is a valuable feature, even though there is a tendency now to ignore it. Your "clamp," as you term it, holds 16 sections, if I am correct. Your bee-escape, fixed permanently in the gable end of the hive-cover, is to me a novel idea, and, I should say, valuable. Altogether your arrangement meets my hearty approval, though I can not but regret that you have started another odd-sized frame. It is, however, so near the dimensions of the crosswise Langstroth frame that it amounts to pretty much the same thing. In fact, I suppose it would be just about right to hold six one-pound sections.

RAMBLE NO. 19.

RAMBLER'S VISIT TO THE CARNIOLAN APIARY.

THE Rambler has been resting a few weeks. A nice little shower of honey made him sit in the shade. Bee-keepers are popularly supposed to get their tons of honey by sitting around. We were finally aroused from our lethergy by Bro. Lockhart, of the firm of Andrews & Lockhart, who proposed to take the Rambler home with him. The Rambler had just invested in a Hawkeye camera; and being

RAMBLER OFF ON A RAMBLE.

thoroughly aroused for the journey, and not knowing what might happen, we had our photo taken, and left it for a hair-loom in the family. We trust our posterity will duly appreciate it. When every thing was ready we were willingly carried away to the delectable Lake George Mountains.

On our journey we passed the apiary of Bro. Andrews, shook hands, and broke bread with the senior partner of the Carniolan Apiary. It was a cloudy day, but our Hawkeye gave us a very good picture of this celebrated apiary. The hives are well shaded with grapevines. The bee-tent, cart, and many nucleus hives, are plainly shown. The building in the rear is a sort of half-way station between the apiary and shop, only a corner of the latter being shown.

During the great rush of queen-raising the past season, it seems that doors were a nuisance, and were removed. Bro. L. also used the further end for a bedroom. The building faces the east; and wishing to get the first streak of morning light, and also to have plenty of ventilation, he removed the whole gable end of the building. It is needless to say, that Bro. L. has good lungs and is built for business. A man brought up on French Mountain wants no seven-by-nine breathing-hole in his house.

We soon left Uncle John; and a further pursuit of our journey brought us into a veritable bee-keeper's paradise. The pasturage in this locality is raspberries, white clover, sumac, chestnut, basswood, horsemint, button-bush, buckwheat, asters, and goldenrod, all by the hundred acres, and the field not much occupied. Bro. L. has an out-apiary started here; and when the Rambler proposed to move up a hundred colonies he looked a little dangerous around the corners of his eyes.

Wintering troubles have made a great many "has been" bee-keepers. One of these "has beens" is Ike Oakley. Not being successful with bees he has turned his attention to the hunting of relics. The plow yearly turns up hundreds of flint implements, skeletons of soldiers and Indians, guns, swords, and other war-relics. As a result, his museum is quite varied; and even if it *is* located in a rickety old shed, we spent a very agreeable half-hour in its examination.

One geological specimen deeply interested the Rambler. It was a portion of black rock covered with small indentations. He gave us a small specimen, and said a glacier once sat down upon it. We asked him how he knew.

"Why," says he, "those marks are an unmistakable evidence."

"That's so," says the Rambler. "He must have been very heavy and awful uneasy, and had buttons all over the seat of his breeches, to make those marks."

"Why," says he, "you—you—this was an ice glacier."

We could plainly see the crank stick out of Isaac's eyes, and we immediately changed the subject and soon took our departure.

Our journey finally came to an end on the north side of French Mountain. As we climbed the mountain we noticed a few rocks around us. As we advanced there were more rocks. At the top it was all rocks, and Bro. L.'s apiary is appropriately named "Rock of Ages Apiary."

We found Mr. Lockhart, Senior, a brawny Scot, and felt quite fraternal, for we have great pride in our Scotch blood. We gave our pedigree; but the wary Scot had traveled much in the Far West, and

ANDREWS & LOCKHART'S CARNIOLAN APIARY.

put the Rambler to the test of pronouncing the word "Achlefackokention."

"Ken ye say it? Yer nae Scot if ye ken nae say the word."

The word was too much for the Rambler. The

secret of getting a right pronunciation is in having a prominent Adam's apple in the throat.

Mr. L., Senior, used the Rambler like a gentleman; but with all our blandishments we could not establish the fraternity of Scotch blood.

As previously stated, this region is not noted for its honey production; and from the number of bees we saw passing over the lake we should think many were lost therein. We found the busy workers upon goldenrod, nearly to the top of Prospect Mountain, 2000 feet above the lake. Messrs. L. were quite enthusiastic over Japanese buckwheat. Their few acres between the rocks were splendidly filled, and they were expecting a yield of fifty bushels per acre.

Of course, our friends claimed superiority for the Carniolans, and we were not in a position to contradict them.

The climate is just right here in summer and fall for rusticating; and people who indulge in a few weeks' vacation gain in health and spirits. Hunting and fishing is the main business of the tourist, and Messrs. L. have a full complement of guns, dogs, boats, and fishing-tackle, and know the haunts of game.

The morning on which we bade our friends adieu, our Hawkeye gave us a view of one of these hunting-parties. The four dogs had their breakfast placed before them; but at sight of the guns it was forgotten, and they were all howling for the hunters to start.

A few years ago, Bro. Andrews tried to get up a party of bee-keepers to camp in his cottages. The plan is a splendid one, but it has never materialized.

Bro. L now proposes to improve on the plan, and camp out in a tent upon one of the beautiful islands. If Bro. Root will promise to be present we will guarantee a party of bee-keepers to make the hours pass pleasantly and lively while he may sojourn with us. Hurrah for a grand camping party of bee-keepers at Lake George next September. Can it be done? asks the RAMBLER.

PROPER CARE OF HONEY.

WHERE TO KEEP IT; A GOOD ARTICLE.

I AM learning more and more the importance of properly caring for honey after it is stored. I believe it is a matter to which too little attention is paid, and concerning which too little is known by honey-producers themselves. All agree, that, to create a demand for the principal product of the apiary, is a matter of prime importance. To do this, two things are necessary: To make honey tempting to the eye in the store, and tempting to the palate in the dining-room. I incline to think the latter item the principal one, after all, that has been urged in favor of "gilt-edge" honey; hence my reasons for treating the subject.

I have this year been inquiring of my customers and others (some old bee-keepers) where they keep their honey; and the answer is, generally, "In the cellar." That is the worst place in the world for it. One woman told me they kept their honey in a cool place in the house. That seems to be a prevailing impression, that honey must be kept in some *cool* place; and to find that cool place, what more natural than that they poke it into the cellar? There they have the very worst conditions for it. The cellar is a good place for milk and potatoes, but not for honey.

CELLARING HONEY.

This largely explains why so many folks do not like the article. I know that parties who once try a few pounds of mine generally want more; and some who thought they did not like honey are becoming good customers. It is the quality, I firmly believe, that sells it. If all honey had to be like some I have tasted, I should not like it either.

HOW TO RIPEN AND PRESERVE HONEY.

This is a somewhat mooted question: Can we secure at the same time the whitest and the best-flavored honey? I claim that we can. The most essential ingredients for ripening and preserving honey are warmth and dryness. Especially are they necessary from the time honey is stored in the hive until it is thoroughly ripened. This I have proven to my own satisfaction by repeated experiments. These ingredients, I think I have also demonstrated, are most fully obtained in a tight, single-walled honey-house painted some dark color, and not on the hive. At the close of the white-clover harvest, which occurs from the 4th to the 20th of July, I take the bulk of my honey, finished and unfinished, off the hives. My first reason for doing this was to preserve the whiteness of the finished sections, and to keep the bees from daubing the edges of the unsealed cells with what appears to be a mixture of wax and propolis, which they are sure to do during the honey-dearth of summer. I leave a few cases on the hive each year. The honey I take off I pack chiefly in unused hives in my honey-house. Said honey-house is built of flooring lumber, single-walled, 12x12x8 feet in size. This room, painted red, with the sun pouring in unobstructed through the south windows, and the door shut, in warm weather, is so hot that it roasts the oil out of me worse than a broiling sun in a harvest-field. Here, during the hot months of summer, I leave my honey to ripen. The honey thus stored away I have found, by repeated tests, to be far superior in thickness, and richness of flavor, to most of that taken off as late as September. Of this last, that which comes nearest to the early-removed honey in excellence is some which I have taken from the upper story of a hive which stood in the sun, exposed to its heat through almost the entire day. This upper story is separated from the lower by a honey-board, having only three crosswise slats for the passage of the bees. The heat of the sun tends to drive the bees down into the lower story, or out in front, especially during the hot dry season when no honey is coming in, throwing the surplus story pretty much into the condition of my honey-house. And it is in that hot dry room we have the conditions best calculated to evaporate the water, and intensify the body and flavor of the honey.

I see no flaw in the theory of this process of ripening honey; but, "the proof of the pudding is in the eating." Even unsealed honey thus treated becomes as good as the best, and better than any I have ever tasted when first taken from the hive, especially a shaded hive. I challenge any one to try it.

But even in the honey-house, certain rules must be observed. Perhaps some apiarists arrange their honey on shelves next to the wall. I should expect such a one to conclude that honey ripens best in the hive. The best place for it is in boxes in the middle of the room, where the sun can shine full

upon it some time in the day. Be sure to set the receptacles several inches above the floor, and away from the wall. Sections left out seem to gather dampness during the night and in rainy weather, when that packed away is protected. Certain it is, such honey becomes thin and watery, and acquires a rancid and often partially sour taste. That packed next to the floor or wall in boxes gets into the same condition. Extracted honey may be even more sensitive to these conditions than comb honey. It should be extracted where the sun can shine full upon it as it runs out of the faucet. Put it in open vessels—5 or 10 gallon lard-cans are the best, all things considered; tie thin cloths over them, and set them in the honey-house, where the sun can shine upon them as far as possible. Do not set them next the wall. I have found on experiment, that the honey in cans near the middle of the room, to become the best; that in screw-cap cans next best, and that in jars next the wall, the poorest. The last had more or less of that taste and smell resembling soured honey.

Before I knew any better I left honey in waxed kegs out of doors. It spoiled in the same way. The thickest honey will be the last to granulate, and the thinnest will be the first.

HOW TO MAKE HONEY NICE.

Some folks like only candied honey. To such, if any of them read this paper, I would say that honey begins to "grain" on the approach of cold weather. If it is stirred a time or two at this stage it will candy much quicker. Also, when honey is left undisturbed, the watery and sugary particles tend to separate, and the latter to form into large crystals. To stir at this time—pouring from one vessel into another—is the best way to do it. Break these crystals; the watery particles are absorbed, and the honey candies in fine grains, which much improves its flavor. GEO. F. ROBBINS.

Mechanicsburg, Ill., Dec. 10.

Very good, friend R. I do not know but that I indorse every point you make. Comb honey, when it is kept in cellars, or where it is damp, or even in a room where the temperature changes so much as to cause dampness to settle on the surface, will fast acquire a moldy and disagreeable taste. It is for this reason that comb honey had better be placed in a room where it will not freeze.

BAD WELL-WATER.

PROF. COOK CONSIDERS AN IMPORTANT SUBJECT.

MR. ROOT:—Would you be kind enough to ask Prof. Cook if he could explain to me the cause of water having a bad smell, in a well 28 feet deep? If I pump it out dry, in two or three days it smells bad again. There is no nuisance about the house. I have cleaned it out, but I can not account for it.

Newcastle, Pa., Nov. 25. WM. GIBSON.

In accordance with the request above, we forwarded the question to Prof. Cook, who replies:

In reply to Mr. Wm. Gibson, let me say that I should be suspicious of ill-smelling well-water—at least, till I had it examined. Sometimes water has a rank odor from the presence of sulphur. This may be unpleasant till one gets accustomed to it; but I do not think it harmful. We dug an artesian well here at the college, which extends down some hundreds of feet through solid rock. This water we regard as very wholesome; yet it smells and tastes very strongly of sulphur.

A much more common cause of odorous water comes from decaying organic matter. In cistern water this is often very offensive. In such cases, drawing water from the top or near the top of the cistern, instead of from the bottom, will free the water of the odor. In this case, sediment from the roof is carried to the cistern, sinks to the bottom, and from the decomposition comes the horrible smell. I have been very thankful for the discovery that simply drawing water from the top removed all this odor of putrefaction.

Such odors are not so frequent from wells; but as the water is usually used for drinking it is far more to be dreaded. Such water is not wholesome, and may cause the very worst forms of disease. In case the surface soil is sand, pollution may come from a vault or cess-pool for a long distance. I should never feel warranted in using such water without first boiling it, till I had it examined by a competent chemist. Analysis will soon show whether it is safe to use or not. As suggested above, a few minutes' boiling of such water, just before using it, will remove danger. It should be boiled fifteen or twenty minutes. The danger comes from minute vegetable organisms, which are destroyed by the prolonged boiling.

The diseases that arise from the use of such water are typhoid in character, and hence very virulent.

Sometimes the water may contain the germs, without any tell-tale odor. Some years ago we had here at the college a very serious outbreak of typhoid fever. It was found that all who had had the disease had used water from a well previously supposed to be unexceptionable. The water was examined, and found to be very impure. The moral is: We can not be too careful to prevent all filth or decaying matter from gaining access to the well. Vaults, barnyards, and dish-water pools near the well are dangerous, and the more so on porous, sandy soils. A. J. COOK.

Agricultural College, Mich., Dec. 30.

In addition to the above, I would suggest, friend G., that you examine the ground around your well for quite a distance. If there is any standing water, take it off by deep underdrains, by a good fall. If there is not a good fall around the well, say for a hundred feet or more, draw in dirt and make the ground slope away from the well. Should this be too expensive, make a well somewhere else. We have recently had some little experience in well-drilling, and I greatly enjoyed having long talks with the drillers, who had been at it all their lives. They said, that, although they could not understand it, yet practical experience seemed to decide that there is just as good a chance of getting water on high ground, or even on a hill, as anywhere else; therefore there is no propriety in choosing a low spot to dig a well. Better take high ground, even if you do have to go a little deeper. No doubt thousands of good people—yes, tens of thousands of innocent and unsuspecting children—have been sent to untimely graves by carelessness in regard to our drinking-water. Many say they can not afford to have a well as they would like; but, my

dear friends, most of us manage in some way to pay doctors' bills and funeral expenses.

GRINDING YOUR GRAIN AT HOME.

WILSON BROTHERS' BONE-MILL, FROM A SANITARY POINT OF VIEW.

FRIEND ROOT:—If it is not too much out of the line of GLEANINGS, I want to tell your readers something that will be a permanent benefit to some of them. Every one knows what an endless amount of patent medicines, patent foods of all kinds, full patent, half patent, and third patent flour, and the thousands of patent machines there are, all working night and day, manufacturing all the patent productions the human mind can conceive of to suit the palate instead of the digestion. Almost all of these modern improvements I have tried, sometimes from choice and sometimes from force of circumstances; but as I didn't have a patent stomach, I have found of late years that old man Gastric was giving way; and the more of these modern introductions he had to contend with, the more obstinate he became. In fact, it looked as if death was on his countenance sometimes. About two years ago I sent and got one of Wilson Brothers' $5.00 mills for grinding graham flour. I see you advertise his No. 1 mill for grinding bone, etc.; but this was No. 0. It proved to be all they claimed for it, and more too. The introduction of this mill was a poor day's work for the patent-medicine men in our family. My wife mixes enough clear flour with it to suit us; and from that day old man Gastric's countenance has brightened up, and even our children are showing the benefit of Wilson Brothers' $5.00 mill. I think that these men have been a greater benefit to those having weak stomachs than all the patent-medicine men put together, and all the patent roller-mill machinery besides. I have spent thousands of $5.00 in my time; but I can recall no instance where that amount gave a better return. I hope that firm is doing a good business, and long may they live. E. E. RISIEN.

San Saba, Texas, Dec. 24.

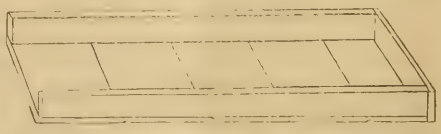
Well, friend R., you may be interested in knowing that, in the first volume of GLEANINGS that was ever published, I made some quite thorough experiments in regard to this very matter; and I talked cracked wheat and cracked corn so strongly to the brethren that some of them got tired of it. A few days ago Mrs. Root said she did wish she could have some corn meal ground as it ought to be. She said all she could get at the flour-store was ground fine, like flour, and that spoiled it for making corn cake or corn mush. Now, friend R., we know just what to do. We will take a bone-mill over to the house, and grind not only corn, but wheat, oats, and barley, to suit. I believe you are entirely right in the position you take; and I am firmly satisfied that, if people would only take the trouble to grind their own grain they would not only get material for food that is ever so much more wholesome than that bought at the stores, but they would also get it for half price or less. Just figure up what your flour and meal cost you, and buy some grain of some of your farming friends, and grind it yourself, and see what *that* costs; then have your wife learn how to cook these cracked grains, and see if you do not pronounce them more delicious than any thing our best hotels can furnish. It may be some trouble to sift the hulls out of the oats; but there is no food I enjoy so much as freshly ground oatmeal; and nothing is more conducive to my health, unless, indeed, it is the bowl of hot lemonade I have every night just before going to bed.

DR. MILLER'S REVERSIBLE BOTTOM-BOARD.

ITS USE IN THE CELLAR, FOR HAULING BEES, ETC.

I HAVE never had any desire to invent a hive. For a good many years I used the hive that happened to fall into my hands just as I found it, excepting the cover. This was a ten-frame hive; but having had only eight frames in it for a few years, I concluded in 1889 to change to an eight-frame size. Sometimes I question whether it might not be better to use the full ten frames the year round, and possibly the change to eight frames is not the wisest. Aside from the matter of size, the part upon which I bestowed the most thought was the bottom-board. For a good many years I had used nothing but fixed bottom-boards. I had thought I could not tolerate a loose bottom-board. In fact, for hauling back and forth, fixedness seemed a necessity. But there seemed to be an increasing weight of testimony in favor of having much space under the bottom-bars in winter. It looked reasonable, too, that bees might do better if the fresh air could have easy access to the cluster, and I had had many instances of dead bees clogging the ⅜ or ½ inch entrance in winter; and it was always difficult, although important, to clean out all dead bees from under the brood-frames. Of course, a deep space under the bottom-bars would not do in summer, so I concluded I might do what others had done, and have the space deep in winter and shallow it summer.

Two ways of doing this presented themselves. One was to have the hive made with an immovable bottom, nailed on in the usual way, only, instead of a ⅜ or ½ inch space under the frames, to have a space of about two inches. This would be all right for winter; and for summer a board or boards could be pushed in to partly fill up the space, leaving it only ⅜ deep. I was afraid it would be difficult to keep the space clear enough under the board, so I rejected this plan and adopted the other, which was, to have a reversible bottom-board.



DR. MILLER'S REVERSIBLE BOTTOM-BOARD.

It is simply a shallow box, 1½ inches deep, 2½ inches longer than the hive, and open at one end; 2½ inches from the open end is a ⅛-inch saw-kerf at each side, ¼ inch deep. This allows a wire-cloth stopper to be slid in, when hauling, to shut in the bees; and during winter, wire cloth having 3 meshes to the inch is slid in to exclude mice, and yet leave all practically open for the bees. In summer it is reversed, and makes a perfectly plane surface

upon which the hive is placed without fastening; but when reversed again, in the fall it must be fastened to the hive, to remain so till placed where it is to stay the following spring on its summer stand. Just what the best thing was to fasten with, was not easy to determine. At one time I thought to use hooks for fastening; but a little experience with Vandeusen clamps taught me that, after becoming a little old, there was some difficulty in getting the parts to fit properly together. Besides, there is some objection to having a hook, or any thing that projects, so as to prevent an entirely plane surface. Then I thought nothing would be quite so satisfactory as to have four screws let into the bottom, screwing the bottom firmly to the hive. But my assistant objected to setting a hive full of bees on its end twice each year to put in and take out the screws. Finally an old cabinet-maker advised me to fasten the hive on the bottom in the same way that the frame of a common table or stand is fastened to the top. An inch bit bores a shallow hole in the side of the hive, which is lengthened by a gouge chisel, and then the hive is turned upside down, and a quarter-inch hole is bored through in a slanting direction, to come out at the side of the hive in the first-named hole. Thus the hive can be placed on the bottom-board, and four 1½-inch screws, two on each side, perhaps three inches from each corner, can be screwed in, holding the two together in a very solid manner.

So far I am much pleased with the more than 200 of these bottom-boards in use. I am, however, disappointed in the ease of putting them on. It is difficult to set the hive exactly to fit the saw-kerf mentioned; and as the hives sometimes get out of square, the difficulty is increased. I think next summer I shall try leaving some of them fastened without reversing; and for the summer, put in a thin board with cleats under, or perhaps a shallow box made of thin stuff, and inverted, leaving a shallow space under the bottom-bars. I shall be glad of suggestions, whether my general plan be approved or not. C. C. MILLER.

Marengo, Ill., Dec. 16.

It is true, friend M., that you have never had a desire to invent a hive, but you have helped us here at the Home of the Honey-bees a good deal in deciding upon the details of the construction of a good many things. One of the things, however, that we could not quite agree upon was the bottom-board of the Dovetailed hive, as you will remember. You argued in favor of one made reversible, essentially as you describe and illustrate above. Now, the objections that I would have to the one you illustrate is, that it would be more expensive. Another thing, a body that would be adapted to such a bottom-board could not be used for a super, because such a body would have to be a bee-space deeper *below* as well as *above* the frames, and that would not work, you know, in tiering up. It is true, there will be some advantage in inverting the bottom-board, as you describe, during winter; but, really, is it necessary? Is there not a cheaper and simpler way? Why not leave the bottom-board off entirely? When we carried our forty colonies into my front cellar, we removed the bottom-boards from all except from some seven or eight colonies. The bottomless hives we piled one above the other, after the manner of H. R. Boardman (see GLEANINGS, p. 319, 1889). The dead bees drop out, I find, very nicely, in between the hives. There is plenty of bottom ventilation, and I am sure from what I now know that I should not want a bottom, even if reversible. During all the warm weather we have been having, the bees in the cellar have been remarkably quiet; and the number of dead bees on the floor, I should say, was very small in comparison with the number I saw at Mr. Boardman's repositories. Now, doctor, you do not always winter bees successfully in the cellar, if I remember correctly, and yet H. R. Boardman does so invariably. Don't you believe that you would have just as good success as he, by leaving off *all* the bottom-boards altogether, and piling the hives up in the cellar quincunx fashion—that is, one hive covering the space between two others below? and if that were a fact, wouldn't the reversible feature on your bottom-board be an unnecessary expense?—Now in regard to the matter of fastening bottom-boards for hauling bees. I have tried the screws on some 35 colonies, the bottom-boards being screwed on while the hive was empty and the body turned upside down. When we brought the bees up from the basswood apiary to my house, and when we came to remove these screws from the hives containing full colonies, you may imagine that we had a—well, "a picnic." Mr. Spafford held the hive up in the air while I crouched down under, with screwdriver, and wormed away until I thought my neck would break. Occasionally a bee would come out when the screwdriver slipped. But your plan of putting the screws in from the top, toenail fashion, would obviate all this trouble. But there is this objection to it—it would take too long, fastening and unfastening the bottoms. Now, Rambler's plan of passing a loop around the bottom-board and cover, and twisting it taut with a stick, works very nicely. It holds both cover and bottom when removing the bees. A better plan is a double loop, which I will explain in the department of Our Own Apiary later. Both bottom and cover are made perfectly secure for moving bees, and for any other purpose, except for shipping. ERNEST.

HONEY-DEW FROM PINE.

SOME OF IT STORED DURING THE LATTER PART OF DECEMBER.

MR. A. I. ROOT:—Having seen many articles in GLEANINGS about the poor quality of honey-dew, and they not corresponding with our experience here, you will please allow me to state in your columns, that ours in Virginia is an entirely different article; and to prove my assertion I inclose a few pine leaves coated with it. I also send by this mail a vial containing a sample collected this morning, by placing the point of a penknife under the drops, many of which were as large as would hang on the leaves. Bees are swarming on them, and the queens are laying. We often have this honey-dew, but I have never known it to come in midwinter before—generally in August or September. Please

tell us your opinion of its quality, and whether you still think the Northern States are preferable for apiaries. If any one doubts these facts I will give him all necessary proof. J. OSBORN.

Amherst, Va., Dec. 30.

I will say to our readers, that the pine leaves seem to be of young, vigorous-growing foliage. They were literally daubed with some kind of sweet, which to the taste is very aromatic and pleasant. The nectar in the vial corresponded to it exactly. Now, without having further facts in regard to the matter, I am inclined to decide that this honey-dew is an exudation or secretion from the plant itself, and not of insect origin. This, however, never takes place, if I am correct, unless the trees are of a vigorous growth. The sample of pine leaves seemed to indicate that they were, and friend O. can probably tell us whether this is the case right in the middle of winter, as it were. I should be very glad indeed to see a specimen of this honey after it is stored in the sections, and ripened. I should think that, in quality, it would compare with the finest-flavored honey ever produced anywhere. Can anybody tell us more about it?

Since the above was written, the following comes to hand, which seems to indicate it an insect secretion after all:

MORE ABOUT PINE-TREE HONEY.

Friend Root:—I by this mail send you some insects that are producing considerable honey on the pine timber. Bees have gathered 10 to 20 lbs. of it, to the hive, this month, and it is now candied in some of the cells. The honey is quite clear, and some think it the best. No honey candies here while sealed in the combs. I will send you a sample of pine honey, if you have not seen any. It does not come every year. I never saw it at this season before. In 1886 it was plentiful in March and April. As soon as pollen is more plentiful I think I can rear queens. F. C. MORROW.

Wallaceburg, Ark., Dec. 30, 1889.

The insects mentioned above, so far as I can see, are almost exactly like the green fly of our greenhouses, only they are black instead of green.

CHAFF HIVES FOR CELLAR WINTERING, ETC.

FRIEND DOOLITTLE'S EXPERIENCE?

IN reading the account of the International Bee Convention, as given in the *Canadian Bee Journal*, I see that Mr. J. B. Hall is represented as believing that bees would be "protected too much" if they were put into the cellar in chaff hives, he illustrating what he meant, by saying, "When I go into a warm room I take off my overcoat," thus leaving us to infer that he thought bees would be too warm in the cellar, if in chaff hives. Now, this used to be just my idea of the matter till I began to experiment to find out the truth. After these experiments, I am prepared to say that bees will winter far better in the cellar, if in chaff hives, than they will in single-walled hives, providing they are fixed as they should be in the cellar. The experiments conducted were as follows:

One season, some four or five years ago, I had some quite weak colonies, formed by uniting nuclei late in the fall. These were in chaff hives, as I had intended to winter them outdoors; but after all the rest of the bees were in the cellar, which I had intended to put in, I found that there was considerable room left in the cellar, so I decided to try a part of these small colonies in chaff hives by putting them into the cellar, for I feared they would not go through the winter where they were. Accordingly, I put some six or seven of them in, two of which were placed in the cellar, just as they stood outdoors; i. e., the bottom-board, cap, and chaff or sawdust cushion were all carried into the cellar, with no means provided for ventilating the hives, save what air would go in and out the entrance. Two others were left the same as outdoors, save that the cap or hood was left on the summer stand. The remaining ones were raised from the bottom-board some three inches, by way of putting two sticks of ordinary stovewood between the bottom of the hive and the bottom-board, one on either end of the hive, the cap being left outdoors the same as with the last. That the reader may better understand, I will say that the chaff, or fine straw (I prefer the latter), is about four inches thick on all sides of the hive, while over the top of the frames I use two thicknesses of common cotton cloth, preferring that these pieces of cotton cloth be free from propolis, although not all of them are so. Over these pieces of cotton cloth I use a sawdust cushion, which is nearly as large as the whole top of the hive, this cushion coming out well over the straw on all sides, thus making it impossible for currents of air to pass rapidly through the hive, or for the bees to get above the cotton cloth out into the tops of the hive. This sawdust cushion is of about the thickness of the straw at the sides; and being of fine, dry, basswood sawdust, it is capable of absorbing lots of dampness before it becomes wet to any appreciable extent. Now for the result:

On setting the bees out in the spring, I found both those dead which were put into the cellar, the same as they would have been left outdoors; one dead, and the other in a weak condition, of those which had only the entrance of the hive for ventilation, but had the cap left off; while those raised from the bottom-board on sticks of stovewood, were apparently in as good condition as they were when put into the cellar the fall previous. Seeing the success attained by these last, I now commenced to put more colonies into chaff hives in the cellar, so that the present time finds seven-eighths of all my bees in chaff hives, three-fourths of which are in the cellar, all raised at the bottom, and fixed as above.

I have just been in to see them, so that I might tell the reader the difference between these and those in single-walled hives. Those in the single-walled hives are clustered closely on all parts of the cluster, bottom, top, and sides, the same as they would be outdoors, only not quite so compactly; while those in the chaff hives are clustered just as closely as the others at the bottom of the cluster, and a little way up the sides; but as you come toward the upper half of the colony, the bees stand out around on the combs the same as they would in summer; while at the top, all along next the cushion and cotton cloth, they make no pretensions to clustering whatever, although you can look at them for a long time without any of them stirring, no matter how close you hold the light to the hive. In this way they have free access to all

parts of the hive, so a colony never starves as long as there is any honey in the hive, by their eating the honey from one side and failing to move over, as is frequently the case. But the greatest item of the whole is, that these colonies in chaff hives do not consume more than two-thirds the honey that those do in the single-walled hives, while the safety of their wintering successfully is almost fully insured, for I have yet to lose the first colony in these hives where wintered in the cellar. Where they are wheeled right into the cellar, as I gave in a recent article in GLEANINGS, the labor of putting them in is very little more than with ordinary hives. Of course, a less number can be put into a given space, yet I think the saving in honey will more than compensate for building a little larger cellar, where it is necessary.

BEES BY THE POUND IN THE MAILS.

On page 970 of GLEANINGS, 1889, I notice you see "important results" from the sending of bees in the mails. I also notice a rather less bitter comment than some previously made on the same thing, in the last *Review*. Now, all I have to say further on the subject, after what I have already said, is, that, when the time is ripe for sending bees by the pound in the mails, they are going to be so sent, and nothing can hinder them. You speak of the impossibility of making a cage stout enough, and at the same time light enough, not to be broken. This will be easily accomplished when such want is felt, or the time is ripe, as spoken of above. What is there to hinder inclosing the cage in a sack of stout burlaps, and, if necessary, the whole again in a sack made of duck or bagging? This would make it so that nothing short of willful meddling could get the bees out into the mail-bag, and yet the bees could have all the air they require.

Borodino, N. Y., Jan. 3, 1889. G. M. DOOLITTLE.

I suppose from the above, friend D., we are to gather that bees are much better off in the cellar in chaff hives, providing they have abundant lower ventilation; and I am inclined to think this latter a pretty good thing, no matter where they are wintered. I know that bees do sometimes seem to suffer, even in the cellar, where there is but little over them to keep the warm air from passing away. Now, in your arrangement you had the whole top of the hive so well protected that the warm air, being lighter, filled it completely, enabling the bees, as you say, to move about from one part of the hive to another, without being obliged to knot themselves up into a dense wall or cluster. Leaving such abundant ventilation below would permit any bee that got too warm to go down and get fresh air to its heart's content; while others that do not care for fresh air (like sundry human beings) could stay where it is hot and close all winter if they choose. I have seen bees winter in the cellar in just that shape. They would be standing around on the tops of the frames, and even up against the sides of the hives, sometimes a single bee at a time, and all as still and motionless as if dead. A little of your breath, however, would start them to life. Very likely this state of affairs would be great economy in the use of stores; but will the arrangement you describe *always* secure this state of affairs?—Perhaps bees may be put up as you describe, so that even the banging of the sacks of mail would not break the duck or bagging, and let them out. But I hope no one will try it—at least, not just now.

WHAT IS HONEY

PROF. COOK UNDERTAKES TO MAKE IT PLAIN TO US.

I AM requested by one of our best bee-keepers to give a fuller explanation of the nature of honey. He says: "I feel certain you are correct, and it is through a misapprehension that any one is disquieted by what you have written on the subject." I believe this friend is correct, and so I am glad to add a word in the matter.

WHAT IS DIGESTION?

Digestion is the act by which food is so changed that it can be absorbed, or can pass from the stomach to the blood. Water and salts are already in that condition, and so need no digestion. White of egg, muscle, starch, and cane sugar, are not in that condition, so they must be digested when taken as food. Whatever animal, then, eats cane sugar, must digest it. This digestion simply changes the cane sugar to a reducible sugar, one of the glucose group of sugars. This reducible sugar is just as wholesome as is the cane sugar; and as it needs no digestion, it may be more healthful food than the cane sugar. One of our Michigan physicians has told me that he believed that honey, for this very reason, is a more wholesome—a more healthful food, than is cane or common sugar. Nectar is cane sugar dissolved in water. When the bee sips the nectar she adds to it the secretion from the four large racemose glands, which empty into a single duct right at the base of the tongue, where the nectar enters the mouth. These pass together into the honey-stomach, and here the honey digestion takes place. Indeed, there is nothing in the honey-stomach except the nectar, or honey, and the pollen which is sucked in with the nectar. This pollen is mostly separated from the honey by aid of the stomach-mouth, as shown by Schiemenz, before the bee reaches the hive. Thus only the honey, with possibly a little pollen, and, if the bee is collecting very rapidly, some still undigested nectar, is emptied into the cells when the bees reach the hive. The nectar was cane sugar, neutral, and turns the ray of light to the right. The honey is reducible sugar, acid, and turns the ray of polarized light to the left.

Now, these are all facts, as certain as that bees gather sweets from flowers. As they are facts—long well known to science—it is our duty to accept them, even though they were unwelcome. But why are they unpleasant? Reducible sugar is as clean, and possibly more healthful, than is cane sugar. A healthy secretion is added to change the sugar; but milk is a secretion, and we regard it as one of the most inviting and wholesome foods. The digestion took place in the honey-stomach, a clean reservoir from which it comes, any way, so no one need object to that. Although honey is certainly digested nectar, there is nothing in this that should alarm or disquiet any one. It is clean, wholesome nectar, transformed in a clean vessel by aid of a clean, wholesome, secretion. People who have not studied the question of digestion may associate something unpleasant with the word. This is quite uncalled for. It is not the digested food that is un-

savory; *that* is pure and sweet, and fit to go to the blood which receives it. It is the indigestible part of the contents of the stomach and intestines, together with the excreta, that are unclean. These are found only in disagreeable form in the lower part of the intestines.

I will say, that this view is not original with me. It is found in all works on physiological chemistry, and in all works that treat fully on the scientific part of bee-keeping.

Does some one say: "Well, what of it?"? Only this: Any truth is important. We may never know when facts may bear practical fruit. Some may have thought that Franklin was at small business when he was tripping lightning with his kite. Would they have thought so could they have looked ahead and seen the telegraph, telephone, and electric motor? Though we may safely doubt any scientific statement in silence, we should never deny such until we have carefully tested the matter. A. J. COOK.

Agricultural College, Mich., Jan. 6.

There, friend C., you have given me a new idea. Milk, butter, cream, eggs, and all such products are the results of digestion, inasmuch as they are an animal secretion; therefore we need not necessarily feel disgusted, even if the bees do add something to the honey they swallow, and throw it up again. In the same line, we need not object to honey-dew for food, even if it is plain that it is the secretion of insects to be found on the foliage of the trees. The honey-dew from the pine-trees, mentioned by friend Osborn, on page 51, is the most beautifully flavored, aromatic honey, I think I ever tasted, judging from the small samples sent in.—I suppose, friend Cook, the only reason why some of the friends feel stirred up in regard to this matter, is, that certain unscrupulous parties—Mrs. Cotton among the number—claim, or seem to claim, that sugar syrup fed to bees comes out honey when capped over in the combs. Now, your position would seem, at least in a measure, to strengthen this idea. Those who know you, of course know you do not mean to do any thing of the sort; and I feel pretty well satisfied (from what experiments I have made) that all the real change the bees make in the nectar gathered from flowers amounts to so little as to be hardly worth mentioning, unless from a scientific point of view.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

ARTIFICIAL HONEY.

Friend Root:—Inclosed please find a circular containing something about honey. Those parties are distributing their circulars through our town, and say their agents will call in a week or two, and sell family rights for $1.00. I think it deserves a place in your Humbug and Swindle column. I should like to have your opinion of the circular.

Payne, O., Dec. 15, 1889. E. H. UNDERWOOD.

The following is a copy of their circular:

HONEY.

After years of experimenting with blossoms and their extracts, we have secured from the Patent Office National Legal Authority, with protection from the same, to offer our honey to the people. And in doing so, it shall go squarely on its merits.

It is difficult for all persons to obtain natural honey, as so many live in the cities and could not raise bees. Their dislike to certain persons also prohibits many. Their sting is a fatal poison to a few. They are tender, hard to winter, worms are destructive to them also.

Our advantage is, we can reach all the people with perfect safety and at one-half the expense, and furnish you a honey that no man can tell from bee honey, perfectly healthy, and that you can make for your visitors in ten minutes.

Ours never produces colic. We gather the same sweets by extraction from the blossoms that bees get. We make it just the color that bees do, or we can make it as white as the whitest sugar.

Now, we will satisfy any person of all the above statements, or we will not ask you to buy. To any out of employment and who want to work, call on us, and if we don't give you the best seller now on the market, we will give a donation to you. We will sell at a uniform price, that none may have any just cause of complaint against us.

Please preserve this circular until agent calls.

Family rights, $1.00. GORRELL & PARKISON.

Friend U., we are very much obliged for the circular. In fact, we shall be glad to get every thing of a similar purport. There are several things about the circular that indicate at a glance that the parties are humbugs. No address is given. Never pay any attention to any circular or advertisement that contains no address. Second, the expression, "Patent National Legal Authority," is humbug, the whole of it. There is no such thing in existence. To wind up with, the expression, "Family rights $1.00," stamps it as a fraud. Never give even a nickel to anybody who comes to you with any thing that winds up with something about "family rights." I know that some of you are inclined to argue the matter; but look back and see if all the money you ever invested in a family right for any thing was not money thrown away. Give these fellows a wide berth. Treat them in such a way that they will get discouraged, and go home and go to work, making up their minds that honesty is really the best policy.

AN OLD FRAUD REVIVED—J. M. BAIN.

Mr. Root:—Do you know any thing about a paper called *Mutual Helper*, Vanville, Ohio, James M. Bain Editor? I signed for it two years ago. He says, "I will give a town lot, 103 feet in length by 40 feet in width, in Marquand, Madison Co., Mo., to any person that pays $1.50 for one year's subscription to the *Mutual Helper*." I have got a deed for the lot, and it has been recorded, but I haven't heard from it since, nor have I paid any taxes on it. The paper says they would notify me when the taxes were due, and how much they would be. I begin to think it is all a humbug. Please let me know whether you know any thing about it. I thought may be you did, for the paper is printed in Ohio.

STEPHEN M. RYMPH.

Port Ewen, N. Y., Jan. 7, 1890.

Friend R., James M. Bain, with his *Mutual Helper* and city lots, has been so extensively advertised as a humbug and swindler that we did not suppose many would be caught by it. He has for years been a disgrace to the State of Ohio; and, dear friend, when anybody offers to give you more than a dollar's worth for a dollar, and throw in a city lot besides, set him down as a humbug at once, and *don't* send him any money—not even a postage-stamp.

BEE-HUNTING IN THE SIERRA NEVADA MOUNTAINS.

A BEE-HUNT—CONCLUDED FROM LAST ISSUE.

AFTER dinner we started out again, bee-hunting. I had gone but a short distance when my attention was attracted by some bees working on a singularly beautiful flower of a deep fiery-red color. I learned that this plant is what is known as a snow-plant, a flower of surpassing and wondrous beauty. It grows along the snow-line of the Sierra Nevada Mountains, at an elevation of 6000 feet and upward, where snow usually falls to a depth of from four to six feet. The botanical name of this plant is *Sarcodes Sanguinea.*

After wending my way up Silver Fork Canyon, a steep and precipitous water-course, I came across several bees working on various wild flowers that I was not acquainted with. After hunting quite a while for the tree, and not finding it, I returned to camp. I found that the others had been unsuccessful too, not finding a single tree.

The next morning we started out again, intending to go up to the head of the canyon. The scenery along the canyon was grand beyond description. The north sides were covered with a dense growth of tall arrowy firs, spruces, and tamaracks, their countless spires rising one above the other in all directions, while on the south side the country was more open, being occupied with a growth of flowery chaparal, manzanita, deerbrush, etc., with here and there occasionally a sugar or yellow pine. On the south side of the ridge we came upon a large open tract of country, covered with the fragrant white-flowered folocio. Thousands of bees were at work gathering honey and pollen, their happy hum imparting cheerfulness to the wild scene. This folocio grows in patches by the hundreds of acres, forming a dense green carpet under the yellow and sugar pines. We had no difficulty in finding several bee-courses. We found one hive in a sugar pine, and another in a cedar. Being satisfied with our afternoon's work we started for camp. At the base of the mountain we came across one of the old apiaries of R. Miles, who used to keep 135 colonies in three different apiaries. The present owner does not know any thing about bees, only about 30 colonies being left. The old empty hives are scattered in all directions; some of the benches are broken down and rotted off, tumbling the bees to the ground. The present owner never comes near, unless to take off some surplus honey. None of the hives are protected from the weather. Some, the tops are partly off; others, the sides are warped out of shape, making a place for wind and rain to beat in. At one time this was a well-kept apiary, the hives standing on benches 60 or 70 yards in length. The hives were painted various colors—red, blue, green, white, etc. The hives he used were the Harbison and Quinby. Mr. R. Miles, the bee-man, came to an untimely death. He got lost in the snow, and was not found until two months afterward.

Arriving at the camp we made our usual arrangements for passing the night. We kept up a large fire, the mountain air being pretty cool. The scene from our camps after night, was grand. On the opposite ridge the gigantic forest-trees stood out in bold outline, and seemed to pierce the sky, while a dripping spring below us made pleasant music over the moss-covered rocks. Deep silence brooded over the mountains, broken occasionally by the cry of some night-bird, and the night wind rustling through the tall pines overhead. Presently a silver arch rose over the horizon of the distant mountains, and the moon in all her majesty rose in the heavens, flooding the landscape with its silvery light, and fringing the tops of the pines with a frost-like drapery. At length we all dropped off to sleep, and slept soundly until morning. Getting up at our usual time, we soon had breakfast. After breakfast we concluded we would cut all the bee-trees we had found, instead of hunting any more, as we did not have the necessary utensils for holding the honey. We spent three days in cutting the trees. They averaged over 100 lbs. to the tree.

The following week I returned and transferred all the bees from the logs to frame hives. I managed to save all but one colony—the queen being killed, I suppose, by the fall of the tree. I moved the bees to my mountain apiaries; and they all did well. Bee-hunting is truly a fascinating pastime. A well-known bee-writer has said, "It is the pastime of the few and the mystery of the many." In bee-hunting you are continually learning something new. Truly the study of God's works is a noble one. S. L. WATKINS.

Placerville, Cal., Dec. 27, 1889.

CHRISTIAN SCIENCE, FAITH CURE, ETC.

SOME KIND WORDS IN REGARD TO IT.

FRIEND ROOT:—I want to object, in a friendly way, to your article in regard to "faith cure." I have no doubt others will write you as I do, that for once you have got matters decidedly mixed by confounding Christian Science (so called) and healing in answer to the prayer of faith. I have no more sympathy with the former than you have; and if you meant to refer to that, your language is mild enough; but don't confound the two. Because Warner's Safe Cure doesn't benefit you, don't condemn *all* medicine, even if the family physician prescribes it.

It seems from your writing, that you must believe in an answer to the prayer of faith for healing. You speak of asking friends to pray for you, if under great affliction. What is the use of praying, if favorable answer is impossible? But, to answer you in regard to the prayer of faith for healing: It is scriptural. See Mark 16: 17 and 18—"And these signs shall follow them that believe . . . . . They shall lay their hands on the sick, and they shall recover;" also James 5: 15—"And the prayer of faith shall save the sick, and the Lord shall raise him up." Please note, there is no limitation of time in regard to this; and these assurances are as good as they were the day they were written.

Again, there are to-day hundreds of people living who have been cured in this way, but I have never heard before of any pay being received. The most noted advocate of "faith cure" in its right sense in New England is Dr. Cullis, of Boston, who has been the means in God's hands of doing untold good in other ways. Dr. C. is a practicing physician, making a specialty of lung diseases, and able to command a good large sum for his services; and yet when a person wishes to claim, by faith, healing of disease, he always finds Dr. C. ready to claim God's promises; and while many have been cured,

no fee is ever charged. I speak as one who has experienced healing in this way by faith, and so I ask you to investigate this matter thoroughly.

It seems as though you should not lose any subscribers because we can't all agree with you. We believe you honest, and it would hardly show a Christian spirit to get angry because you considered it your duty to write as you have; so I trust that none who love the Master will have any angry feelings about it; and surely those that don't love him needn't care. You brother in Christ,

C. E. PEASLEE.

South Pittsfield, N. H., Dec. 11, 1889.

Many thanks, dear brother, for your very kind suggestions. Your concluding sentence indicates most unmistakably that the spirit of Christ Jesus has found a lodging-place in your heart, no matter what may be our convictions and beliefs in regard to other matters. A great number of letters have been received in regard to the position I have taken, but none written in a better spirit than your own.

SWEET CLOVER IN MISSISSIPPI.

PROF. TRACY'S OPINION OF IT, OF THE MISSISSIPPI AGRICULTURAL COLLEGE.

FRIEND ROOT:—Noting what you say in last number of GLEANINGS about sweet clover, I herewith inclose a letter from Prof. Tracy, of our Agricultural College, bearing on the subject, which you may like to see. You will notice he says they use it for both pasture and hay. I should like much to know if bees are kept near this 160 acres, as its value as a honey-plant can be determined with accuracy, that not being much of a honey country, and the increased yield would be marked. The small patch I had the past season was too small to give any indication of its yield; my idea being to secure seed, and gradually encourage its spread in waste places. But bees swarmed on it continually, notwithstanding the wet weather, and the period of bloom extended into the fall; indeed, in sheltered spots it is green and blooming now. I have never heard whether they have a "chair of apiculture." Send them a copy of GLEANINGS, and suggest it.

Pontotoc, Miss., Dec. 5, 1889. C. P. COFFIN.

We take pleasure in publishing the letter from Prof. Tracy, and hope we may hear from him again.

Mr. Coffin:—The clipping which you inclose, from the Columbus *Index*, undoubtedly refers to the melilotus, but it does not say half as much in favor of the plant as might have been said with truth. I can say nothing, from experience, as to its value as a honey-plant, but I have often seen bees feeding upon it; and being a clover, I do not doubt its value. As a hay-plant it is certainly one of our best. It requires care in handling, as the leaves shatter off easily; and if handled often when very dry, little excepting the bare stems will be left. With proper care in making, it makes the best hay we have for mixing with Johnson grass and other coarse feeds. We have about 160 acres of it, a part of which we use for pasture. We find that cattle do not usually like the feed at first, but they soon learn to eat it, and soon prefer it to other pasture.

S. M. TRACY.

Agricultural College, Miss., Nov. 26, 1889.

Friend C., we are much obliged to you for your suggestions, and also for your letter from Prof. Tracy. I do not believe, however, that sweet clover is worth very much for pasture or for hay, in the Northern States. The matter was pretty thoroughly discussed through our columns some years ago. While cattle eat it at a certain stage of growth, to some extent, this stage goes by so soon that it has been generally voted not worth the trouble, as feed for stock.

THINGS BY THEIR RIGHT NAMES.

DR. C. C. MILLER SCORES SOME GOOD POINTS ON APICULTURAL NOMENCLATURE.

I AM glad to see some attention paid to the matter of apicultural nomenclature. It is not an easy thing, always, to get the right word in the right place, and confusion exists with regard to some of the words in common use among bee-keepers. One thing that tends to increase the difficulty is, after a word has been used for some time the very fact of its having been used gives it some show of right to be used. It is pleasant, however, to note that some progress has been made. Nowadays we seldom hear a man say, "I had five swarms live through winter," or, still worse, "five hives." The word "colony" is used with general uniformity, although I think I have seen objections raised to the word, in the *British Bee Journal*. On the other hand, it is still common to hear workers spoken of in the masculine gender; as, "A cross bee planted *his* sting on my nose." Not only is this common in ordinary conversation, but our best editors allow it in the printed column. The error does not appear flagrant and glaring, only because so very common; but from a grammarian's standpoint, is it not just as bad to say, "A bee planted his sting in my wife's nose" as to say, "My wife got a sting in his nose"? Please, Messrs. Editors, exercise the same authority in this particular that you do with regard to other grammatical errors, and let the worker-bee be spoken of in the feminine or neuter gender.

The words *case*, *clamp*, and *crate*, are used in a somewhat confusing way. One man uses the word *case* for any receptacle on the hive, and *crate* for the same thing used for shipping; while another uses the words in exactly the opposite way. Webster defines *crate* thus: "A kind of basket, or hamper of wicker-work, used for the transportation of china, crockery, and similar wares." I think the use of the word in a more general way has become so common that it applies to articles very much unlike crockery. A sewing-machine, for instance, is crated for shipping, when it is fastened in an open framework of wood; but if the machine were entirely inclosed in a box, I think no one would be likely to call the box a crate. An essential element in a crate seems to be that it must be at least partly open. If I am right in this, it is doubtful whether the word crate can often be used as applying to any thing used in the apiary, and probably never to any thing used for shipping honey, unless it be to the open framework very rarely used in fastening together several of the receptacles used for shipping.

The word *clamp*, as long ago as 1861, and I don't know how much longer, was used (see first volume *American Bee Journal*) to mean a place in which bees were buried for wintering, and I don't know that I ever saw such use challenged; and of late years it has been used by some for a receptacle to

hold sections when on the hive; by others, when used for shipping. A *clamp*, according to Webster, is, "in *general*, something that fastens or binds." A cabinet-maker will show you the clamp he uses. In defining the verb, Webster says, "In joinery, to fit a piece of board with the grain, to the end of another piece of board across the grain; as, to clamp a table to prevent its warping." In this last case, I think the joiner's clamp with a screw is not used, and the only thing that could be called a clamp is the cleat or small piece of board nailed across the larger board. Because it is clamped, no one would call the whole table a clamp. Is it right to call any thing a clamp except when the clamping is especially referred to, and when that is the principal thing? If we allow clamping to include wedging, then sections are sometimes clamped for shipping, and they are also sometimes clamped on the hive. But is it right in either case to say the sections are in a clamp? Suppose some goods are put in a shipping-box, and then wedged in, as is sometimes the case. Is such a box ever called a clamp? The principal use is as a shipping-box, and not as a clamp; and I think I never heard the word clamp thus used, except among bee-keepers. Is it really proper in any case to use the word clamp as a receptacle for bees or honey?

The word *case* means "a covering, box, or sheath; that which incloses or contains." The word is very general in its meaning, and, I suppose, can be applied to any thing that contains sections, whether on the hive or used for shipping; and it is doubtful whether the unmodified word can be restricted to the one use or the other.

An old professor used to say, "Any fool can find fault; but the remedy, that's the thing." I have been finding fault with words as used, and may be asked to tell what are the correct words to apply to the receptacle which contains sections on the hive, and that used for shipping. Frankly, I don't know. We ought, if possible, to settle upon a word that includes any and every thing used to hold sections on the hive, and another that clearly and exclusively means something for shipping. *Case* is correct for either, but is objectionable just because it means too much. True, the older editions of Webster restrict the word case to shipping-cases; but the latest does not so restrict it. The term "shipping-case" describes exactly the thing wanted, and I don't know that any thing better can be desired unless a single word can be found to mean the same thing.

I am not sure that we can find a name so appropriate for what is used on the hive. Is there any thing better than the old-fashioned word *super*? It means *over*, and is thus appropriate for any receptacle placed over the hive. Can any suggest a better word? It is a little confusing to see in Root's catalogue Moore's crate and the T super. One is just as much a crate or a super as the other.

I am aware that I am on slippery ground when I attempt to talk about the meaning of words; but I believe my only object is to help just a little to get things clear, and so will take very kindly any good-natured attempt to show where I am wrong.

And now, Mr. Editor, as editors are supposed to know every thing, will you please give me the definition of the word *apiary*, as used at the present day? I don't think Webster covers the ground, and I confess I have not been able to. C. C. MILLER.

Marengo, Ill., Dec. 24.

We heartily indorse all you say, friend M. Commencing with a wrong word is very unfortunate; for after custom has established a thing it is next to impossible to make any change. I suppose most of you remember our talk on substituting something for the term "extracted honey;" but even had every bee-keeper in the land voted for a better name, most likely no change would have been made. In regard to the meaning of the word "apiary," the A B C book defines it as "A place where bees are kept;" and before it was decided on, a good many of the veterans passed their opinion on it.

EXTRACTORS, REVERSING AND NON-REVERSING; 2, 4, 8, AND 30 FRAME MACHINES.

A VALUABLE ARTICLE, FRESH FROM THE EXTRACTING FIELD, FROM THE PEN OF A. W. OSBURN.

FRIEND ROOT:—This is to be an extractor talk between you and me, and the whole GLEANINGS family. On page 842, Nov. 1, you ask if there is an apiarist among your readers who uses a Stanley extractor. Yes, we have one here, and how do we like it? Pretty well, yet I would not buy one for my own use. Now, do not understand me as finding any more fault with the Stanley than with any and *all* others, for *none* of them are right. What is the matter? In the first place, the most of them are too small, and run too slow. You know the first few revolutions of the basket throw out the *bulk* of the honey; but it does not *dry* the comb. That which does not come off the walls of the cells is the best and the thickest part of the honey, nor will it come off, nor will the combs become dry, without very *fast* running—the faster the better. I have never seen an extractor run fast enough to suit me. Now, were you ever in a sugar-mill (we will call it a mill where they extract the molasses from the sugar by centrifugal force)? If the opportunity ever presents itself, go and see it. You will then see a practical demonstration of what I was saying about the thick and *best* part of the honey being *very hard* to get off from the side walls of the combs. With the centrifugal machine in the sugar-house, when it is first charged with a new lot of sugar, and put in motion, the thin molasses throws out very easily; but it soon gets so thick that the motion of the machine has to be increased to a high rate of speed, so that it hums like the cylinder of a thrashing-machine; *then* it does what it is designed to do; i. e., it *dries* the sugar, i. e., gets the molasses out. Now, is not that what we put combs into an extractor for, to get the honey out? With one of these slow machines it is *impossible* to get the *best* results. I know, Mr. Root, you have made thousands of extractors, and I know that you know that I have *used* extractors a *good deal* in the last 15 or more years. I have never seen one that ran fast enough to suit me yet, nor have I ever seen one large enough to suit me.

Now, before you express any surprise, think a moment, that, for our business here, what is there in the way of having an extractor that will hold 20 or 30 combs, and to run *like split;* that is, one to run by a one-horse engine, if you choose? It is cheaper than bone and muscle, to extract 50,000 or 100,000 lbs. of honey. Now tell me, what is the use of all this starting and stopping, as in the case with a small

machine? It takes *no longer* to empty 30 combs than it does 2, after the machine is ready to start; then if you have your machine built correctly, and run by power, two minutes is enough to extract the 30 combs. How long would it take to extract 30 combs with a two-frame machine, run by man-power?

About reversible extractors, I do not know. The Stanley, which we have, and are now using, is the first one I ever used, and it is a question in my mind whether it is faster than the old machine, where we turned each comb separately, or not; for it is not as handy to get the combs in and out as the old one, and then the baskets get tangled up every little while, and time is lost in getting them straightened out again; so I think it is a question whether they are faster or not. Perhaps after this season's crop is taken I shall be able to tell you more what I think of the Stanley Automatic extractor than I can now, for as yet we have thrown out only 15,000 lbs. this winter, but we intend to extract until the first of March.

BREAKING COMBS.

Would you be surprised to know that we *never* break a comb unless it falls and strikes in some position that would break almost any thing? I think the wire cloth the basket is make of should be *fine*, so there will be plenty bearing surface for the comb to rest against, then the comb will not stick and break out of the frame when you go to remove it; no trouble about the honey going through fine cloth, for it will get through all right. Friend Root, here is another thing: What is the objection to uncapping the combs by steam? I have never tried it, but I think it is just as feasible as running a train of cars by steam. For large apiaries, if we can uncap and extract by steam, then will the cost of production be reduced to a much smaller figure than it is now. You make one strong point in favor of the reversible machines when you say, in your remarks upon friend McIntyre's letter, page 841, that "the reversing device loosens the combs from the wire cloth better than you can do it by hand." So it does, and that is a strong point in favor of those machines; but for all, with fine wire cloth, the combs will not stick very much. I think you must be joking, Mr. Root, when you say, that "an expert with a two-frame extractor will throw out more honey, than one with the great big heavy machines." Now, bless your heart, what do you think we could do here with a two-frame machine when the six-frame Stanley is not fast enough? We have to get over our apiary *every week*, and *no mistake* about it, and then the strongest colonies are full, and crowded for room. Well, my son (who is 15), and myself take the combs out of the hives and extract them, and throw out from 1500 to 2000 lbs. a day, right along, and still at the time I write this we are not quite keeping up with the bees; they are gaining on us, and we shall have to get another man, from this until the first of February. Now, I do believe my son is an "expert" with an uncapping-knife, and that I can throw out as much honey as a green hand, and do it well; but still, we can not do it fast enough. The time spent in the honey-house extracting *must* be reduced, and it *can* be—I am sure of that. Two good active men should be able to take care of 500 colonies of bees here in Cuba, and take *one hundred thousand pounds* of honey; then the business will pay a good interest on the capital invested, but not with the slow process of extracting we have now. Two men can not handle the honey, and keep up with the bees. You know that, two years ago, or thereabout, you gave a cut in GLEANINGS of our comb-carts. Well, we have two of those carts, and they hold 30 combs each, and we have a box on top that holds 8 or 9 more, making all together in the two carts about 80 combs. We go out in the apiary and fill them, and return to the honey-house and extract them in twenty or twenty-five minutes, but I tell you it is too slow. It should and can be done quicker. Besides, it is very hard to work so fast, but we are obliged to do it or get behind. You know it is now more than six years since I came to Cuba. I went back to California and stayed 18 months; but I think you will agree with me, that I have been here long enough to form some correct conclusions of Cuba as a honey-producing country, something of the possibilities, and what is required to make the business a success. I will not admit to any one that the business of honey-producing upon a modern and large scale is an experiment. I think the business has passed beyond that; and I would say to those who have their "weather eye" upon the dark side of Cuban bee-keeping, "Keep cool and wait results." Friend J. L. Gregg, of Tempe, Ariz., has the right idea of running bees for extracted honey; i. e., keep them extracted clean, even if you have to extract every other day. The bee-keeper that waits for his colonies to get chuck full, loses one-third of his honey crop, in my opinion.

Havana, Cuba, Dec. 24, 1889. A. W. OSBURN.

Friend O., your experience seems to run in doing business on a larger scale than most of us know any thing about. There may be a few apiaries where it will pay to use a small steam-engine to uncap and extract the honey; but I am inclined to think that most of us will have to wait for another generation before we take much stock in such arrangements.

EXTRACTORS.

A FEW GOOD POINTERS, BY W. L. COGGSHALL.

I HAVE a Stanley reversible, and a Novice with the reels, or racks, taken out, and am using them for store cans (if you or any one else wants them for half price, drop me a postal). In fact, they are worth only what an ordinary store can is to me, for I shall never use them. First and most important with an extractor is, to have the combs hang as they do in the hive. It requires a great deal of time to take a frame by the top-bar and then by the end, and lower it into the extractor 18 inches instead of 9, as you would have to do with the Langstroth frame.

Second. Have the extractor large enough to hold three-fourths of a barrel under the reel, and then you will have to strain but very little of the honey—two or three pails at the last end.

Third. The extractor should be high enough to admit a pail under the honey-gate (2-inch gate).

Fourth. The extractor should be fastened to the floor, and bolted to the side of a building, so it will be impossible to move it one-sixteenth of an inch.

Fifth. When the honey is brought in, set it on a level with the extractor.

Sixth. Have a capping-dish by its side.

Seventh. Have the honey-gate on the other side, directly under the handle of the extractor.

Eighth. Store can just beyond.

With the above conveniences, with the help of an assistant, we took off the hive and put in barrels 2530 lbs. in 5½ hours, or 460 lbs. an hour. The extractor is not a reversible. It holds four combs, two on each side (not one on each side). I have a light frame, a little larger than the comb, ½ inch deep, with tin on one side and gauze on the other, slipped in a groove 2¼ in. from the outer gauze, or where the first frame hangs. The frame with the tin and gauze has slats in the end for the honey to go out, and at the bottom the tin is bent, and the machine has a strong gear, 3 to 1, with a short crank at the side. I have one of those machines at all of the out-apiaries. You see, it does not take long to get the wheel to reeling, after the horse is taken care of. I have 600 colonies.

W. L. COGGSHALL.

West Groton, N. Y., Dec. 3, 1889.

Very good, friend C.; but it seems to me that you and a good many others, even many of the large bee-men, make a mistake in considering any arrangement whereby the honey must be lifted up, a pailful at a time. I do not believe that I would submit to any such arrangement, even if I had only thirty or forty colonies. Our extractors are made with the understanding that the honey-gate is to be kept wide open whenever the extractor is running. Now, the honey may run from the extractor into a barrel, tank, or large can, or any thing you choose, placing the extractor on a platform or big box, high enough so that it will run of itself into a large receptacle beneath. By all means, have the extractor screwed fast to the floor or box. It has been said, that we can not build our houses alike, because no two people ever agree as to how a house should be arranged to be convenient. There seems to be a good deal the same difference in regard to extractors. Even most of our great honey-producers have an extractor after their own fancy.

FLORIDA.

A REPORT FROM PROF. WEBSTER.

WE started with 35 colonies at the beginning of the year, mostly not very strong. The old honey gave out early in the winter, and the bees naturally dwindled away to small numbers. Some had either to be fed or starve. Instead of spring dwindling we have winter dwindling, which generally commences in November or December, and lasts till January or February, according to the season. This refers to our own locality. In other localities the bee-forage varies, and there is more honey gathered late in the season, which causes the dwindling to come at some other season, if it comes at all, and it generally does, so far as I have been able to learn. Some localities are having a scarcity just at the time when we are getting our best flow, such is the great variety of soil and vegetation in this State. Notwithstanding all that some enthusiasts say about bees gathering honey and pollen during every month in the year here in Florida, I have satisfied myself from actual observation that many colonies are lost from starvation. I have met several people who had increased their bees to 10 or 15 colonies, and then lost them all in a single season. I have no doubt that the loss of queens often contributes a large share of the cause of loss, but that will not account for all. We lost five or six weak colonies from starvation during the fall and winter of 1888. It would probably have paid to save them by feeding, and it would have been done had we not been busy with other matters; yet there is small profit in feeding bees where 30 to 50 lbs. of honey is an average yield, and that worth only 7 or 8 cents per pound.

HONEY FROM PINE-TREE BLOSSOMS.

We generally get our first yield during January or February, from the spruce, or scrub pine, as it is called here; but last winter the weather was so cold and rainy that we got nothing from that source. In February we got some honey from the long-leaved pine (*Pinus australis*). We could hardly believe that the pine would yield any thing but pine gum or pitch. Observation, however, has satisfied us that it yields a very good honey, about as light colored as goldenrod honey, and in quantities that sometimes give a surplus for extracting. When the bees are working very busily on the pine-blossoms, and filling up the hives with honey, while we can find no other bee-forage that they are working on, we can only call it pine honey.

ORANGE HONEY.

This is our next yield, and often commences before the pine is all gone. It is liable to get mixed with it in extracting, or with andromeda honey, which comes about the close of the orange season. Andromeda honey is about as dark as buckwheat honey, and has a rather strong taste, that, of course, deteriorates the value of orange honey when mixed with it. Where orange-groves are not abundant, and in full bearing, it is difficult getting it pure; and for this reason, orange honey has suffered in reputation, even among good bee-keepers. Some of the leading apiarists from the mangrove region, near the east coast, who are surrounded by orange-groves, had never seen any pure orange honey till I showed it to them last spring. Their bees are near hammocks, where there are many shrubs and vines that yield honey in the spring, and there are too many bees to store much surplus from what orange-bloom is in reach of them. They will get more as their groves increase in number and age. We have never taken more than 15 or 20 lbs. of orange honey per colony. New groves are being planted, and old ones bear more each year, so that the yield is constantly increasing. The only way to get the honey pure is to extract pretty clean just at the beginning of the orange-flow, and again just before the close. The orange generally blossoms in February and March. One difficulty here in getting a good yield of it is in having strong colonies at that time, which is at the end of the winter season, when the bees are generally weak in numbers. Orange honey, when pure, is as light colored as white-clover honey, very thick and heavy. As to quality, we are not afraid to compare it with any known honey. The yield last season was very good, and many bee-keepers in the vicinity of abundant orange-bloom had a surplus of pure orange honey, who had never had any before. We did not get as much pure honey as we might have done, for the reason that my son, Oscar B., and I were off on a trip 200 miles down Indian River and Lake Worth, camping out, and making botanical and conchological collections; but if a love for scientific study gives the bees a chance to run their

business to suit themselves once in a while, we don't blame them if they mix the honey sometimes.

HONEY FROM ANDROMEDA AND OTHER SOURCES.

After the orange yield, which extended into April, we extracted some andromeda honey, to be laid away for feeding back, in case it is not sold. In May the gallberry and saw-palmetto yielded a surplus of very fair honey for extracting, which closed the season for the pine region. We did not extract any after about June 1st, till we concluded to take our bees to the coast for mangrove honey, which we finally did about July 1st, and thereby hangs another tale that had better be postponed for another letter, provided you care to hear it. We realized in all only about 35 or 40 lbs. of honey per colony from our bees up to the time that we concluded to move them to the coast; and had we stayed at home we should have taken no more. Here in the pine woods, 20 to 30 lbs. of honey per colony should be left in the hives in June for summer and fall use. The bees are very strong, of course, when we quit extracting. They keep up breeding during summer, getting just enough honey to keep them going; but by October the honey is pretty well used up, and they quit breeding. Cooler weather comes on; but warm days tempt them out, and I think they do actually gather pollen, and perhaps a little honey during every month in the year; but cool weather chills many a bee till it never gets home again. They wear themselves out, and I have seen colonies with plenty of honey in December and January that did not have a pint of bees in the hive. Some colonies will be strong, while others, with plenty of honey, run down. Without honey, no colony can keep up its numbers.

Lake Helen, Fla., Dec. 23. G. W. WEBSTER.

A LAWYER'S EXPERIENCE WITH BEES.

A GRAPHIC DESCRIPTION OF THE SENSATION OF A BEE-STING; A REMEDY FOR THE ITCHING PAIN, THAT DOES NOT COME OUT OF A BOTTLE.

MR. ROOT:—I want to say something to your readers about bee-stings. Possibly it may be new, possibly not; but any thing that will relieve the terrible itching pain ought to be known. In May last I got an untested queen and nucleus from Oliver Foster, of Mount Vernon, Iowa. She proved to be a hybrid queen, and her progeny as vicious as wild-cats. At first I did not get stung very often, and it made no impression, and I boasted that a bee-sting did not amount to any thing, and laughed to scorn the foolish fears of my neighbors who crept tremblingly up to see the busy colony. Well, "pride goeth before a fall" in the bee-business, just as well as in any thing else. One evening I walked in front of my hive, when a bee shot from the opening and hit me near the corner of my left eye with such force that I thought the man who struck Billy Patterson was somewhere around, and I left. My eye swelled to immense proportions, and the itching drove me nearly frantic. I was in the very depths of degradation, when the swelling extended to the other eye, and I looked like Sullivan, and as if I had been having a "set to," and had been knocked out. I spent the most miserable night that I can remember; but I was much more miserable the next day when I went down to my office and had to run the gauntlet of jeers and sarcastic remarks thrown at me from all sides. I think they would have shown more mercy if I had not talked every mother's son of them almost to death about bees. From that time on, the slightest sting (and they grew quite frequent, for I had my nose in that hive morning, noon, and night, when I had a moment to spare) would puff up like a poisoned pup, and itch! Oh my! how they would itch! One night, in desperation, I held my hand right over the lamp chimney until it singed my wrist bare. To my astonishment, I got relief. It began to hurt again in about half an hour, when I gave it another scorching. Well, that just about cured it, for one or two more burnings left me free from pain. From that time on, when I got stung I had only to heat the part just as hot as I could bear it to get temporary relief; and by repeating the operation it always cured the sting.

I got a select tested queen of you last September, and got lots of bees from her. She is a beauty, and was laying inside of 24 hours after she was out of the cage. I proceeded to decapitate the hybrid queen, though I did hate to do so, as she was so prolific, and her workers were so industrious; but they were so terribly, awfully vicious that I could not put up with them. I divided, and now have three nice swarms in the cellar, each with three times the quantity of honey they can possibly consume; but I was too anxious to winter well. My cellar is dark and dry, and the temperature is about 36° or 38° most of the time. My bees are the wonder of the community, for you know we are within a few miles of the summit of the Sierra Madre, the main range of the Rockies. Not only will they do well, but I am going to have some comb honey next season—if I don't get stung blind before the season is over. J. F. CRAWFORD.

Saratoga, Wyoming, Dec. 23.

Very good, friend C. Now will every one of our readers who gets stung try this simple matter of heating, as mentioned above? May be it will turn out like some other things that work with some people and do not with others. I know that hot water will often relieve the pain of a sprain or bruise, almost as if by magic. The water must be so hot that it will almost make you cry out. I do not understand it; but I do know that, when the pain from the hot water begins to abate, the pain of the sprain goes with it.

ADULTERATED (?) HONEY.

SAID TO COME FROM CHAS. F. MUTH & SON; HOW THE GENTLEMEN HANDLE THE MATTER.

FRIEND ROOT:—Dec. 12 I sent to Mr. Meek, who is a very good man, a keg of as fine clover honey as there is. Now, Mr. Meek sends me the money—yes, but he shakes his head, and seems to say that that home-made stuff is too fine for honey. Mr. Meek's good opinion is of interest to us, and it would be a pity to permit him to make erroneous statements in his publications. His letter and my reply, with your own remarks in GLEANINGS, will do, perhaps, a lot of good. I will inclose both. CHAS. F. MUTH.

Cincinnati, Ohio, Dec. 23.

Chas. F. Muth & Son:—The keg came to hand yesterday. If this is honey, I must confess I had never seen the article before, though I have several stands, and have been acquainted with bees for

more than half a century. I keep it, not because it is honey, but, having ordered it, I feel under obligation to do so. This home-made article may do as a substitute. Find my check for amount. Please receipt and return bill. ZEPHANIAH MEEK.

Catlettsburg, Ky., Dec. 18.

Copy of Reply.

Zephaniah Meek:—Your favor is at hand inclosing $5.80, balancing invoice of 12th inst. Accept thanks. Your letter causes a smile, without the least bit of ill feeling on our part, because we know that you are sincere and conscientious. However, we say that we never soiled our fingers by adulteration. We, too, are sincere, and I would add that we will pay you one hundred dollars if you will prove that the honey we sent you is not the pure product of the bee, derived from clover and linden blossoms. Hoping that a closer examination will convince you that we have sold you some of the best honey in the world, and wishing to supply you in the future, we are, with best wishes of the season,

Yours, CHAS. F. MUTH & SON.

Cincinnati, Ohio, Dec. 23.

We take pleasure in assuring friend Meek that C. F. Muth never sold a drop of adulterated honey, if he knew it; and as he is a veteran in the business, and about as keen and sharp a business man as you can find in Cincinnati or elsewhere, there is not much probability that he has been deceived.

WILEY'S FALSEHOOD.

A MICHIGAN MAN WANTS TO KNOW IF THERE IS A "SILVER LINING" TO IT.

I HAVE long wanted some one to give me the bright side of Prof. Wiley's pleasantry. I have been expecting Bro. Root to show us the "silver lining to the cloud," as he commonly sees the bright side of every thing. I thought that, when the Rambler got his bearings he would tell us of the service the professor had done us poor bee-keepers. But it is not likely that they ever drove into town on a one-horse chaise, with seven boxes of honey, and had a glass-front groceryman come out and pay the high market price, "and a little more," for the honey, just because he knew by the looks of your rig that you were not handling bogus honey—he, the groceryman, being suspicious of that honey down at the commission house, "so white and fair." And then when you are selling honey that you did not take off the hive as soon as sealed, or, rather, sections that you have been three years trying to get the bees to put honey in, the surface of which is geographically expressed as gently undulated, the woodwork varnished with propolis, and color variegated; and when your attention is called to these defects, you can speak right out that it is none of your "bogus manufactured artificial honey;" but that it is just as the bees made it—*honest honey.* And then when you have put the best sections outside, and best side out at that, if you do not have enough good ones for the outsides you can cover up a poor-looking one with one of A. I. Root's cards, offering one thousand dollars reward; and if there is a kick, you can get in some sledge-hammer blows that the bees do not make them all alike, as a machine would; and even if you are not much of a talker you will be able to convince nine out of ten persons that the bees made it; that it is *honest honey*, and honesty covers a multitude of faults. And then your friends and neighbors buy of you. They know that they are getting what they pay for; but they are not so sure of that honey that is shipped in to commission houses by those honey-kings.

If it were not for that humbugging superstition produced by Prof. Wiley's after-dinner pleasantry, those king-bees of Cuba, California, and Wisconsin would have crushed the life out of us poor but honest bee-keepers, in our home market, long ago.

FRANK L. LEE.

Farmington, Mich., Dec. 14, 1889.

Thanks, friend Lee. I can just fancy that a comical smile was playing on one side of your mouth when you wrote this. Yes, there is a faint glimmer of a silver lining; but over against it, in striking contrast, is the dark cloud of unretracted falsehoods passed from one newspaper to another. Just the other day a prominent lawyer in Cleveland sent down to Medina for a crate of "choice bees' honey." "Why in the world should you send to Medina when there is just as good honey in almost all the groceries and commission houses right in your own city, and perhaps at your own door?" I thought. Reading on down the letter a little further the writer said, "I am afraid of the honey that is in Cleveland. I know that *your* honey is the honest product of the bees." From one point of view, Wiley's falsehood benefited us to the extent of a single crate of honey. That was the silver lining you referred to. From another point of view, there are thousands and thousands of customers just like this prominent lawyer, who like good honey, and would use it, providing the ban of suspicion had not been placed on it by willful and malicious falsehoods circulated by the press. While this state of affairs enables us to sell now and then a crate of honey which we should not otherwise have sold, it prevents the sale of thousands of other crates of just as good and honest "bees' honey" in the city, which the consumer is suspicious of. ERNEST.

CHEESE-CLOTH AS A BASE FOR FOUNDATION.

SUCCESSFULLY IN USE IN 100 COLONIES IN ARIZONA.

I HAVE been using foundation on cheese (or butter) cloth for two years, and I like it very much. In this hot climate, where the mercury often goes up to 110°, we feel the need of something to hold our combs from melting down, especially when extracting. You know, as well as myself, if the bees are well shaded they will take care of the combs, with proper ventilation; but when we undertake to extract from these combs, with the mercury up to 110°, we often have quite a mess of broken combs. Now, friend Root, the only objection to cloth dipped in wax is the inclination of the bees to gnaw at it and take it out, as suggested in the A B C book. I find, if I dip it often enough, or, in other words, if I make the coating of wax thick enough, there is no trouble about it. They will finish it up in nice style, and it works all right. I have about 100 hives supplied with combs made in the above way. To put them in the frames, I have a machine that

presses them in nicely. Then I put in about four little quarter-inch wire nails, which hold them securely in place. I first cut the cloth just the size of my frames, and then dip it in the wax about four times, when it is thick enough for all purposes.

Now, friend Root, is it not possible for you to get a very fine wire cloth, say of copper, woven so as to make the meshes about 30 to the inch, so as not to cost more than one or two cents to the foot? If that can be done, bee-keepers can make a foundation that will be the thing for this hot country. If iron wire could be made fine enough, I have no doubt but it would be just as good, but I have my doubts about their being able to make it fine enough to answer the purpose. You have done much in furnishing bee-keepers with cheap wire cloth for other purposes, and if *any one* can get this thing, you can. Let us hear from you on this subject. JOHN L. GREGG.

Tempe, Arizona, Dec. 14, 1889.

Friend G., no doubt you can succeed with cheese-cloth by coating it with so great a quantity of wax; but, dear friend, just think what it costs you. You are not aware, perhaps, that we have already tinned wire, so small that it will just give us only the strength desired. In fact, No. 36 we have decided to be too small for the wired frames illustrated in our catalogue. Our good friend Vandeusen, however, makes flat-bottom foundation on this very small wire, and he can put in just as many wires as you choose. You will find this wired foundation much cheaper, I am sure, than to use so great a quantity of wax as you do on cheese-cloth. The expense of the wax is the trouble. If you use less wax, so as to make the base of the cells about the usual thickness, the bees will surely go to work and tear the cloth, sooner or later. We have tested it pretty thoroughly. Very likely you require not only wired combs, but combs with additional wires, in your very hot climate of Arizona.

BEE-YARDS.

SHALL THE GROUND BE SODDED, OR SCRAPED LIKE A BRICK-YARD, A LA BOARDMAN?

IN GLEANINGS for Nov. 15 I notice what friend Boardman says in regard to scraping off the turf, etc., in bee-yards, and in some former edition I think you stated yourself that a bee-yard should be as clean as a brick-yard. No one enjoys seeing a nice bee-yard more than I do; but what makes the nicest bee-yard may be a difference in taste in different persons. For my part I do not like to see a bee-yard or any other yard appear as barren as the ground of the "Garden of the Gods" in the Rocky Mountains. Nothing in the world can approach in appearance a lordly coat of verdant green sod, as well in a bee-yard as any other yard or lawn. How would a public park in a city appear if the turf were scraped off with Bro. Boardman's saw-scraper?

CEMENT BOTTOMS AND DOORYARDS FOR ENTRANCES, AND HOW TO MAKE.

I love to have bee-yards as well as house-yards as green as they can be made; but at the same time, have a clean place without grass, to place the hives upon. This can easily be had by simply making a cement floor for that purpose. To do so, make a frame of strips two inches wide by one inch thick, of a size large enough to project over the sides and rear of the hive four inches, and in front 24 inches. Nail stays across to keep it square. Place it on the ground where you wish to set your hive, and mark around the outside of it. Remove it, and with a sharp spade cut down through the marks about four inches deep, and remove the ground to that depth inside of the marks. Then fill up the excavation with fine rocks, pounded down solid, and just even with the outside surface. Remove the stays on your frame, and apply it as before, sloping downward in front about an inch. Now fill up the frame even with the top, with a mixture of ⅓ good cement and ⅔ sand, thoroughly mixed dry, and then water enough to make a thin mortar. Slope off the top corners after leveling off with a straight-edge and trowel, and you have an everlasting floor for your pets that needs no scraping. Sow your yard in dandelion and white clover; and in the spring, when the former is in bloom, and you see the bees enjoying themselves at it, I think you will want no more scraped bee-yards. The lawn-mower is sufficient. J. B. BAUMBERGER.

Washington, Kan., Dec. 10.

Friend B., your plan is tiptop. Essentially the same thing has been given, however, before. Are you sure you have got it thick enough to stand 15 or 20 below zero? Even if it is, I am inclined to think that many of us can get slates or very thin stone flagging so as to be cheaper than the cement.

HONEY FROM LOBELIA.

MEDICATED HONEY FOR THE CURE OF COUGHS, COLDS, CONSUMPTION, CATARRH, ETC.

WE respectfully call your attention to our lobelia honey that the bees gathered and stored with our surplus, during the months of August and September, 1889. We wish they hadn't done it, for our surplus is not salable unless for medicinal purposes. The pastures were thickly covered with lobelia, and in due season the bees went to work and stored honey that has a strong taste of lobelia. In fact, it is so strong that a very little of it will nauseate a person, and in many cases vomit him. We got but little honey that was not so tinctured with it as to be worthless; yet it is beautiful, clear, heavy honey. Brood-chambers are full of it, so our bees have their cough medicine handy. What next?

Rochester, O., Jan. 1. M. W. SHEPHERD.

Well, old friend, I am inclined to think that the lobelia honey you have on hand is worth a good many times the price of ordinary honey. Lobelia is now a recognized remedial agent in medicine, and I think it quite likely that this notice will bring you a call for all you have, at a good price. You may send me five or ten pounds for our own use. I have before mentioned, that, when I was quite small, I was for several years weak and feeble from the effects of inflammation of the lungs. Well, my cough was so distressing that almost every winter for several years they were afraid it would be the death of me. Lobelia always gave relief. I used to take enough to feel just the least symptoms of vomiting, and then the cough would "let up." When I got older I used to carry lobelia-pods in my pocket, to

chew when I was in school, when my coughing would disturb others. Still, the poison must be taken with discrimination; but I should think your lobelia honey would be just the article exactly. One could determine by experiment just the quantity needed to produce the desired result. I should be exceedingly glad of opinions from our medical brethren in regard to lobelia honey. As we may hear from a good many, please let us be brief and to the point. Meanwhile, friend S., you had better put a price on your medicated honey, and do not be in a hurry to dispose of it all.

THE MICHIGAN STATE BEE-KEEPERS' CONVENTION.

SECTIONS OPEN ALL AROUND.

Continued from last issue.

THERE was quite a long discussion in regard to sections with openings for bees all around instead of at the tops and bottoms only. Our friend H. D. Cutting brought samples of both kinds, showing very distinctly that the bees fastened the comb honey more securely to the wood of the section where there were openings at the sides as well as at the top and bottom. The reason of this I never clearly understood before. It seems that the bees leave passages for their convenience, at the corners and at the sides, where the sections are made in the usual way; but where openings are also made in the sides, allowing them to pass freely from one section across to the next, they seem to decide that these holes through the comb are not needed. Now, this not only gives us more honey in a section, but it gives us comb honey more securely fastened to the sides, thus greatly, it would seem, obviating the danger of breaking down, and leakage during shipment. This is a very important matter, if it should transpire to be true. There is, however, a difficulty in using sections open all around in most of our usual arrangements, especially where the T super, which has been so largely adopted of late, is in use. The difficulty is this: Where sections are to be open at the sides as well as at the top, the sides must come *tight up* against each other. If they do not, the bees will stick propolis and glue in the crack or opening. If this opening is large enough to allow a bee to pass clear through, it would not be so bad; but the space left where the tongue of the T tin goes up through is just right to get the sections badly propolized. Of course, this can be scraped off, but the labor is very much greater. We have in our apiaries obviated the trouble by turning the T tin over so the tongue is downward. This, however, necessitates having the bee-space of the T super at the bottom instead of on top—an arrangement which has been pretty universally decided to be objectionable. I should be glad of facts from experience, in regard to the matter.

JAPANESE BUCKWHEAT.

Very large yields were reported, both of honey and grain. One report was given of 290 bushels from 18 acres of ground. There was quite a discussion in regard to Japanese buckwheat for flour. Several millers had complained because it was so much larger than any buckwheat they had ever heard of before, it would not go through their screens; and some of them made flour of it by sifting out all the largest and plumpest kernels. These best kernels were called "screenings." Bee-keepers were advised to look into the matter whenever they take Japanese buckwheat to mill. A miller at Lansing, Mich., however, pronounced it the finest buckwheat he ever ground. Very likely he had screens adapted to it. Thirty-one pounds of flour were obtained from a bushel of grain. As the flour is quoted at 2 cts. per lb., it would seem that the grain ought to be worth from 60 to 75 cts. per bushel, for making into flour.

TAYLOR'S METHOD OF FINDING QUEENS.

Our friend R. L. Taylor gave the following method of getting a queen quickly from a powerful colony. If I remember correctly, it was to provide your hives with some sort of perforated zinc honey-board; then when you wish to find the queen, smoke the bees at the entrance, and drum on the back of hive just enough to alarm them, so they will commence going up through the honey-board. It seems that the queen starts very quickly under the influence of an alarm like this; therefore all we have to do to find her is to pry up the honey-board and turn it over. She will be found on the under side, trying to get through. Friend Taylor, in order to prove the feasibility of this method, took 25 colonies, one after another, and found the queens of every one of them as quickly as he could go over them, in the way I have described. Our friends will recognize this as somewhat similar to friend Heddon's plan for finding queens by turning over a section of his divisible brood-chamber. I have often secured queens from box hives by drumming say a pint of bees into a super or empty box placed over the hive. As soon as a pint have collected in this upper receptacle, you will be almost certain to find the queen among them. By friend Taylor's method she starts out to go up in the same way. The worker-bees, of course, pass through the zinc readily. She, being prevented, however, will be found on the under side.

SHALL WE USE BASSWOOD FOR SECTIONS?

This matter was very thoroughly discussed. Several members present told us that both basswood and white poplar were being gathered up, for use in the paper-mills; and one statement was made, to the effect that more basswood was being cut from one locality for the above purpose than all the bee-keepers in the United States together were using; therefore should we decide with friend Boardman and friend Manum not to use basswood any more for sections, these other fellows would probably cut it all off for their use. This is not very good reasoning, I know; but is it worth while for us to stop using basswood just to let other industries take it from us? White poplar seems to be found in considerable quantities

in many localities, but the timber is usually small. Somebody asked about the white poplar in Ohio. Friend Hunt remarked that Ohio was not so "pop'lar" since election. The president here called him to order, reminding him that politics was out of place in a bee-keepers' convention. This timber, called white poplar, seems to be the same thing that we have for years been accustomed to call aspen, or, in other localities, "quaking asp." This latter name is given on account of the peculiar tremulous motion of the leaves when stirred by a breeze. Another brother got up here to tell us that the aspen in his locality furnishes so much honey that it would damage him almost as much to cut it off as it would to cut off the basswood. It yields its honey so early in the season, however, the bees are seldom as well prepared to gather it, therefore it can not be of as much value as basswood. Now, dear friends, it seems to me that about the only encouraging outlet for us is to plant basswood forests, and may be poplar also. They are both exceedingly rapid growers. In many localities we need not go to the trouble of planting—simply keep live stock from the woodlands, cut out the other timber, and you will very soon have a basswood orchard or a basswood *forest*, if you choose, to your heart's content. I am inclined to think it will pay bee-men to pick out pieces of woodland in their vicinity, and set to work in a systematic way to encourage the basswoods. On page 10, Jan. 1, I mentioned where basswood sprouts had come up around the stumps in the comparatively short period of ten years, so as to give trees large enough to yield honey and to make sections. Where you own a piece of basswood timber, you can monopolize the matter; and it seems quite likely that a basswood forest would pay, even for other purposes than sections and honey. Come, boys, let's get at it. Look over the basswood tracts in your neighborhood; and where the land is not held too high, buy it up and go to work encouraging the little basswood-trees. If you have the time, and feel like it, you can get a more even stand by doing a little transplanting. I for one should like to go out this very afternoon and start the thing going. It is true, we have eight or ten acres of transplanted trees already, but it is not enough. Every man who proposes to make bee culture his occupation for life ought to have 25 or more acres of basswood, all his own, somewhere in range of the flight of his bees. If he goes to work earnestly, cutting off the other timber, and encouraging the basswood, in the majority of cases I think his children will respect his memory enough to keep the project going. What do you say? I did not give the above suggestions at the convention, but I give them *now*. Have you any thing better to offer?

FLAT-BOTTOM FOUNDATION.

Quite a number testified to the fact that comb built out on flat-bottom foundation has less of a fishbone than on foundation made of the natural shape. The reason seems to be, that the bees, in changing the flat-bottom to the natural-shape cell, thin the base more to the thickness of natural comb than with the other. I believe it was generally admitted, that bees are often slower to commence working on it; but this is not always so, and need not prove to be very much of a hindrance.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

LENDING GLEANINGS, FINDING SOMETHING TO DO AT HOME, ETC.

Mr. Root:—GLEANINGS is one of the journals that ought to be found in the family of every bee-keeper, gardener, and farmer. There is but one thing lacking in it, and that is a poultry department. I think that is the next thing to bees. There is not enough attention paid to poultry. It is useless for me to even try to estimate the value I have received from GLEANINGS and your A B C book. I have been a constant reader since Jan. 1, 1882. Pardon me if I have done wrong; but I don't think there is a family within four miles of me but that I have given a copy of GLEANINGS to, in order that they may reap the benefit. I make my bees do as I please. I have them boiling over all the time. I have too many irons in the fire to be comfortable. I am a blacksmith, bee-keeper, poultry-breeder, stone-mason, buggy-painter, carpenter, and wagon-wood maker; but I do not go away from home to do work. T. A. INGHRAM.

Waynesburg, Pa., Dec. 25.

Well, well, good friend, we are certainly very much obliged to you for your kind wishes. You have not done any wrong at all in lending GLEANINGS, so far as *we* are concerned. Just keep lending them, right and left, in the same way, and tell us how many numbers you lose, and we will replace them free of charge. Don't be at all backward, for we have stacks of them that will probably never be used, unless for paper-rags. Surely you are taking pains to find something to do; and I agree with you that it is worth a great deal to be able to find plenty of work at home, without being obliged to run around for it. A man who can induce people to come to him is certainly in much better shape than the one who has to go around and beg for something to do. I often think about saying more in GLEANINGS in regard to poultry; but our agricultural papers have so much of it, besides our regular poultry-journals, that there hardly seems to be any great need of any thing from us in the matter.

A NEW 5-CENT PACKAGE FOR EXTRACTED HONEY; USING AN EGG-SHELL, AND SEALING WITH WAX.

I send you by mail to-day a new package for extracted honey, filled with honey which I think might be granulated by this time—at least, I believe it is new, as I have never heard of such a package before. The cost of them is nothing to those who keep poultry, as the contents can be used. A pin or fine needle is sufficient to make a hole with at the small end of the egg. The other end will require a hole at least as large as a small pea. I can not give the exact proportion of beeswax and rosin used in sealing. I use a glass syr-

inge for filling them, as the honey must be kept away from the edge of the shell. In order to make a proper job of sealing, it is necessary to counteract by cold the heat of the wax when sealing, as the heat has a tendency to expand the contents, thereby forcing the honey out through the hot wax, and spoiling the job. I hope to have some of these packages at the World's Fair in 1892, as well as others which are under way.

THE DOVETAILED HIVE; MOVING BEES.

I am very much interested in the Dovetailed hive for moving in the flat to and from out-apiaries; but I suppose they have to be nailed about as well as any other hive. I moved my bees last summer into a basswood locality 15 miles from here, and I think I was well repaid for the extra trouble and expense.

THE PICTURE-GALLERY.

I want to thank you a little extra for the illustrated supplement to GLEANINGS. I am sure there are a lot of unspoken thanks among your subscribers. This letter gives me an opportunity to vent mine. W. HARMER.

Manistee, Mich , Dec. 30.

RAISING QUEENS IN NUCLEUS HIVES.

I should like to have you tell me how to start a nucleus to raising queens. I have 53 colonies of bees, and it is my second year in the business. I don't know every thing, and all the old bee-men around here tell me it can't be done. If it can, I want to do it this coming spring.

Hammond, Wis., Dec. 23, 1889. A. E. BRADFORD.

Most assuredly, nucleus colonies will raise queens, if you make them queenless during the warm months, or when bees can fly. It is better to have the *cells* reared in full colonies, then give the hatched queens to nuclei, to be fertilized. Full particulars are given in the A B C. You will be interested in reading, also, G. M. Doolittle's book on queen-rearing, price $1.00, postpaid. It can be had of us.

WARM WEATHER FOR BEES IN THE CELLAR.

We put 156 colonies of bees in the cellar. The last one was put in on Thanksgiving day, and it has been so warm ever since (4 weeks now) that it has been very difficult to keep them quiet enough; but by keeping the two windows open all the time, and the door opposite windows open that come upstairs into the hall, and the outside hall-door open, the cellar is kept dark and well ventilated; yet they get so lively some days we are obliged to close the windows, and throw water over the floor. I never knew it to be warm so long in winter before.

Roseville, Ill., Dec. 26, 1889. MRS. L. C. AXTELL.

We have been having remarkably warm weather; in fact, pansies in our flower garden would stick up their pretty heads during almost the whole of last December. Yet our 40 colonies in the cellar have been quiet, and the cellar has maintained a uniform temperature of from 44 to 46 degrees. Our cellar is under the front room of the house, and the windows are shaded, or rather covered, by the floor of the front porch. This darkens, as well as helps to keep down the temperature. The walls, being 14 in. thick of masonry, the temperature does not vary much.

NEW POLLEN; WARM WEATHER.

We are having a very warm winter. So far it is more like spring than winter, and has been so almost all this and last month. The thermometer is ranging from 70 to 80°. Our dooryard is sodded with Bermuda grass, and it is now like a green carpet. The maples are budded out, and the bees have been bringing in a little pollen for three or four days. Vegetable seeds that were scattered in the open ground are coming up thick, such as tomatoes, okra, and mustard; and corn is up two or three inches high. I was raised in this county, and have never seen any thing like it. I feel as if we ought to be planting our crops. We have not had cold weather, even to kill our pork. We have had but few frosts yet, and then ice formed in water-buckets standing out, only once or twice, and that last month.

MY REPORT FOR 1889.

I commenced in spring, 1889, with 29 colonies, and increased to 51. I took off, extracted honey, 2716 lbs.; beeswax, only 24 lbs. In 1-lb. sections, not full pounds, 1700. I left, I thought, plenty in hives, but I may have to feed back some. Honey nearly all sold. R. J. MATHEWS.

Riverton, Miss., Dec. 26.

A WARM CHRISTMAS.

This goes to you to-day, to record the fact that on Christmas day, 1889, all doors and windows are open, birds singing, bees flying, flowers blooming, at a temperature of 74° in the shade! Bees are swarming on flowering quince, which is in full bloom. We've had *no winter*, except a few days in November. A second crop of potatoes was plowed up, and the ground sown to a late crop of buckwheat in the fall. The ones not gathered that remained in the ground have produced a *third* crop of nice rosy potatoes that we are eating now. Strawberries are in bloom. C. P. COFFIN.

Pontotoc, Miss., Dec. 25, 1889.

Warm weather during this Christmas does not seem to be confined to the South. Even here in the North we have been having pansies growing in our flower-garden almost every day in December.

UNUSUAL WEATHER; BROOD-REARING IN ⅔ OF THE COLONIES.

This is Christmas day. Bees, so far as I can learn, are wintering nicely in Central Ohio. We are having a succession of beautiful sunshiny days; and in looking over my apiary to-day I find that brood-rearing is in progress to a limited extent, with nearly two-thirds of my colonies. I do not think it best, though, to encourage it at this season of the year. Bees, so far, have consumed very little of their winter stores. H. C. MOOREHOUSE.

Marengo, Ohio, Dec. 25.

NO COLD WEATHER.

I have 71 colonies of bees in fair to extra good condition, at present writing. We have not had any very cold weather, but a great amount of rain. It has been raining since five o'clock this morning, and now, at 2 P. M., there are indications of snow. I would say, with reference to Japanese buckwheat, to those who wish to grow buckwheat, there is nothing to equal it, either for grain or bee-pasture. H. P. HACKETT.

River, O., Jan. 1.

UNUSUAL DECEMBER WEATHER FOR OHIO.

How is this? The bees are carrying in pollen this 21st day of December, from dandelions. They are out in abundance here in Eastern Ohio, and the

thermometer stands at 65° in the shade in the day time, and very little frost at night.

Jewett, Ohio, Dec. 21. DAVID LUCAS.

SOFT MAPLES OPEN IN DECEMBER.

I find this day that the bees are working on the soft-maple and the peach, which are in full bloom. Temperature is 70 in the shade. What is this world coming to? JOHN F. HEPP.

Boonville, Ind., Dec. 28.

A REMARKABLE SEASON.

We are having a very remarkable season. Pastures are green enough to be tolerably good grazing. Peach and plum trees are blooming; fig-trees have young leaves and young figs, some of them as large as the end of your thumb. T. N. BEDFORD.

Fayette, Miss., Dec. 30.

THE UNUSUAL CLIMATE OF TEXAS.

This is an unusually mild fall. This county, Fayette, is 100 miles north of the Gulf of Mexico, and is by no means the mildest county of this great State. We had a light frost about Nov. 18, which killed the tenderest vegetation in the low lands; but now cotton is still blooming on the high lands, a blossom of which I here inclose you. Bees have been quite busy for the last two weeks gathering pollen and honey from elm, cottonwood, and wild peach, all of which are blooming profusely now; but we expect a norther soon, which will drive the busy little bee home, and kill most of the flowers and blossoms, and give us a chance to kill hogs for meat. In this mild climate we can kill only when a norther blows up. We have had good crops of all kinds, and money is flush. J. C. MELCHER.

O'Quinn, Tex., Dec. 20.

A MILD WINTER IN TEXAS.

This has been a poor year for bees here. My bees have not made a pound of surplus honey this year. In fact, I thought I should have to feed them up for winter, but they made some honey from cotton and broomweed, very late, perhaps enough to winter them. I increased my stock from 7 to 17. The weather here for the last three or four weeks has been very warm. We go in our shirt-sleeves; bees are flying every day. It rained a great deal throughout the summer, which accounts, I suppose, for no honey. Most of my bees are Italian now; but I had one hive of blacks, or hybrids, that brought in more honey than any of them, though no stronger than some. W. A. CARTMELL.

Crowley, Texas, Dec. 14.

A CALL FOR A CONVENTION OF MARYLAND BEE-KEEPERS.

Having so often wondered why the bee-keepers of Maryland could not organize and properly support an association, I, some months ago, broached the subject to several bee-keepers in this vicinity, and wrote an article, which was published in the *American Bee Journal*, page 756, 1888. This called forth but one reply (page 803, 1888); and being very much engaged I dropped the subject for the time being. I should now like to propose it again through your columns.

When speaking on the subject to a member of the Tri State Bee-keepers' Association he informed me that he was awaiting the call of the secretary; but, alas! he has been waiting many years in vain. The last convention of that association was held, he told me, several years ago, in Hagarstown, Md. Can you not stir them up a little, or are they dead and buried? and if so, can you give us any information as to their death and burial?

Baltimore, Md., Dec. 24. HORACE BANKS.

We hope the bee-keepers of Maryland will respond to this at once. Write to friend Banks, if you are interested.

FEEDING SOURED HONEY.

I have a quantity of strained honey which is three years old, and may have soured. I wish to feed it to my bees, but I do not know whether it will answer the purpose as it now is. Will you be kind enough to advise me what to do, how to prepare it, etc.? W. STICKNEY.

Rathboneville, N. Y., Dec. 27.

The first thing to be done, friend S., is to ascertain whether the honey is soured or not. If it is, it must be scalded, and be sure not to burn it or scorch it. You can then feed it like any other. It is a pretty hard matter to feed liquid food, however, in the depth of winter—that is, unless we have weather so warm that the bees can fly. If, after having scalded it, there is still any trace of honey being spoiled, do not think of feeding it until we have settled warm weather, say April or May. If you feed it during cold weather, it will surely give your bees the dysentery.

TO GET RID OF ANTS' NESTS; BEE-STINGS A CURE FOR RHEUMATISM.

I use lye to destroy ant-heaps around the bees. Make it weak where it is to be used around the roots of trees. Now about rheumatism. I had it over forty years in my right arm, from my elbow to my shoulders. In transferring a very cross swarm of bees they everlastingly went for my wrists. The rheumatism is gone, and I can now throw a stone with that arm as well as ever, and the bee-stings did it. J. B. WHITON.

Ithaca, Mich., Dec. 23, 1889.

BROOD IN THE SECTIONS, CAUSED BY TOO LARGE OPENINGS.

I used other sections last season, and I got terribly beat. The openings were too large, and about one-half the first-crop honey could not be taken on account of brood in them. I noticed this by using yours first, and the others, last season.

Farmington, Mo., Dec. 16. JACOB HELBER.

Friend H., you have started something that I had not thought of before, or, at least, I do not remember that it has ever come up. Your experiment seems to be quite conclusive. We should be glad to hear from others in regard to this very matter.

BEE-STINGS NOT A CURE FOR RHEUMATISM.

I have been troubled with rheumatism more or less all summer; and when I went to fix my bees for winter I got tremendously stung. As a rule, I don't care much whether I'm stung or not; but on this occasion I was almost glad, on account of the rheumatism. Well, a day or two after the stinging I had the worst attack of rheumatism I ever had in my life. Are we to understand by that that the stinging was the cause of the severe attack?

This has been a very dry summer. From about the first of June till very lately, when the wet

weather set in, my rheumatism disappeared almost entirely. Are we to think from that, that wet weather is a cure for rheumatism?

Wyoming, Ont., Nov. 26, 1889. A. DUNCAN.

Friend D., we should say, from your report in regard to bee-stings, that they were certainly not always of benefit in cases of rheumatism; but when you speak of rheumatism being better in wet weather, we should be inclined to say you didn't have rheumatism at all; or if you did, it must have been a sort of contrary kind. Dampness has always been considered bad for rheumatism, so far as I know.

ALFALFA IN KANSAS.

I have 20 colonies to transfer for a neighbor who is tired of the box and log hive. What time in the spring, early or late, would be best for doing the transferring? Three crops of alfalfa were cut here this season, without irrigation. We have had very fine weather so far, as there has not been a day this month when the bees did not fly, and fill the air with their merry hum. We were much pleased with the "Picture Gallery" in GLEANINGS for Dec. 15, and heartily wish you success.

McFarland, Kan., Dec. 21. M. H. LITTLETON.

Transfer in the spring during apple bloom. For particulars, see "Transferring" in A B C of Bee Culture.

GETTING RID OF ALFALFA.

Can alfalfa be plowed and killed out, if it should be desirable to do so? A. A. SANBORN.

Westfield, Mass., Dec. 16.

Although I have not had any experience in this line, I feel quite sure that alfalfa can be plowed under, just like any other clover. Of course, the roots go very much deeper than you plow; but I am quite certain that it will not come up again if a fair sod is turned under. Will some of our alfalfa-growing friends tell me whether I am right?

A CORRECTION ON THE USE OF TERMS.

I want to correct a mistake which you, in common with some other of our American brethren, are in the habit of falling into. On more than one occasion you have referred to Ontario bee-keepers as "Canucks." You are evidently not aware that this term is applicable only to the *habitans* of Quebec—in other words, to French Canadians. "Johnny Canuck," arrayed in his blanket, coat, capoo, and tasseled night-cap, is typical only of the old *voyageurs* of Lower Canada, and is in no way applicable to the people of Ontario. As well might you apply the term *Yankee* to the natives of Virginia or Mississippi as "Canucks" to the major portion of the Canadian people.

On several occasions you refer to Mr. J. B. Hall as a Scotchmam. I have always believed him to be a genuine "John Bull," and I think he is sufficiently "English, you know," to prefer being spoken of as such. Canadian, I think, is the appellation he likes best. This is not in a spirit of fault-finding, but rather to correct unintentional mistakes.

Owen Sound, Jan. 6, 1890. R. MCKNIGHT.

We were under the impression that Mr. Hall said he was a Scotchman; but whether he be a "Johnny Bull," a Scotchman, or a Canadian, it is all good blood. We certainly beg pardon for the use of the term "Canuck," as applied to our Canadian friends, as has appeared in our columns. As you very kindly intimate, it was an unintentional mistake, one that will not occur again in our columns, and we hope not elsewhere.

REPORTS ENCOURAGING.

HOW AN INVESTMENT OF $230 BROUGHT IN $455; ALFALFA.

I invested $230 in bees last March. I sold bees and honey to the amount of $455, and have 32 swarms in good condition for winter. Bees in this part get the most of their surplus from alfalfa, there being an abundance of it here. J. W. BELL.

Mancos, Col.

AN AVERAGE OF 140 LBS. FROM 67 COLONIES.

Sixty-seven colonies, spring count, gave me within a few pounds of 4 tons of extracted and 1320 lbs. comb honey, the latter in 1-lb. sections, or nearly 140 lbs. for each colony, and an abundance to winter on. Last year my average was about 125 lbs. each. I do not claim this is any thing extraordinary, but it is a high average for this country.

Turin, Ia., Dec. 23, 1889. J. M. HATHAWAY.

$520 FROM THE BEES.

We had 50 colonies this spring to start with, nearly all in good condition, and increased to 69. We lost one this fall by robbing, and now have 68 put away into winter quarters, in good condition. We got 5169 sections of comb honey, and sold the most of it for 10 cts. a section. It made us a little over $520. They made an average of 76 sections to the hive. J. A. KENNEDY.

Farmingdale, Ill, Dec. 23.

HOPEFUL PROSPECTS IN CALIFORNIA.

The heavy rains in California, and especially in this part of the State, have done great damage to all railroads—so much so that no mails have been received at Los Angeles or San Diego from the east for eight days, and none are expected for some time. I am in hopes to send this letter by boat via San Francisco. The Jessie strawberries are now in fruit and bloom. I think that, in this climate, they will be perpetual bearers. The outlook for the next honey crop was never better. There is a large increase in the number of acres sown to grain this season over last. Crops are looking fine, and farmers are happy. W. G BAKER.

San Diego, Cal., Dec. 27, 1889.

FROM 82 TO 155, AND 4600 POUNDS OF HONEY.

I commenced the season with 82 colonies, and increased to 155. The season was very wet, cold, and backward. Up to June 15, bees had to be fed up. I made 2500 lbs. of white-clover honey in 1 lb. sections, which I sold for 12½ cents per pound, and 2100 pounds of extracted, mostly on hand now. I put 100 colonies into the cellar, November 28, and since then we have had very fine weather. Bees have had a flight almost every other day, and are in splendid condition. The day before Christmas I united 20 colonies with others having young queens. It was 60° in the shade. Plowing was going on yesterday around here. It froze some last night, but it is warm to-day. Those in cellar have kept very quiet so far. W. ADDENBROOKE.

North Prairie, Wis., Dec. 27.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 152.—*a. I use the flat covers, cleated at both ends, the same as are used on the Dovetailed and Heddon hives. This cover is spaced five-sixteenths of an inch above the brood-frames. In the production of comb honey, would it be of any advantage for me to use enamel cloth under the covers? b. Would the same be a convenience for queen-rearing, or under any conditions where the brood-frames are to be handled considerably?*

a. I should say no. b. I should say no.
Ohio. N. W. H. R. BOARDMAN.

a. I prefer a cap or hood for a cover. b. Yes.
New York. C. G. M. DOOLITTLE.

I have dispensed with all cloths. I think the wood alone better on the whole.
Michigan. C. A. J. COOK.

a. I don't know. b. I have had no experience in that line.
Wisconsin. S. W. E. FRANCE.

My experience is too limited with such covers for me to have formed an opinion on these points.
Cuba. O. O. POPPLETON.

We prefer enameled cloths covered with straw mats to every thing else; and we have tried a great many other devices.
Illinois. N. W. DADANT & SON.

a. With such a cover I don't see the use of enamel cloth. b. In queen-rearing I prefer to use a cloth on the nuclei, when bees are inclined to rob.
Louisiana, E. C. P. L. VIALLON.

a. No. The use of any thing under the cover would be a positive damage; for where the cloth touched the sections it would be glued fast to them. b. Yes, and I like it the best of any thing I've used.
Ohio. N. W. A. B. MASON.

b. I consider enameled or painted duck cloth over frames that have to be frequently handled as of much advantage, as it facilitates free access to the combs.
California. S. W. R. WILKIN.

a. I think not. b. In queen-rearing in the *early* part of the season it might be of some utility in assisting to retain the heat of the colony.
Illinois. N. W. C. MRS. L. HARRISON.

a. Not over the supers, but a decided disadvantage; for the tops of the sections would have five times the bee-glue. b. Yes, it is much easier to pull off a sheet than a board.
Illinois. N. C. C. MILLER.

a. Yes, lay the enamel cloth directly over the sections, black side down, and then lay on the cover. b. Yes. I have used it for years over my nuclei, with a board cover over the cloth. It is very convenient to so use it.
Vermont. N. W. A. E. MANUM.

I should by all means use an enamel cloth whenever the frames are to be handled to any extent. Size it to the outside of the hive, not to the inside; otherwise the bees will get at the edge somewhere, and soon nibble it until it is unserviceable. In queen-rearing I suppose there is more utility in the enamel than in honey-raising; but enamels are worth their keep in either case.
Ohio. N. W. E. E. HASTY.

a. I want an enamel cloth for every hive, both for comb and extracted honey. We find them very handy in contracting the brood-nest of small swarms in early spring, when the weather is cool.
Wisconsin. S. W. S. I. FREEBORN.

I consider the enameled cloth of no advantage whatever. The space between my frames of the lower and upper story is ⅜ inch, which is also the space between the upper frames and the wooden cover above them.
Ohio. S. W. C. F. MUTH.

a. After using several styles of covers, we are greatly pleased with the flat covers, and would not use rags or enameled cloth in any form of honey production. b. Enamel cloth might be convenient where queens were raised in compartments in the same hive; otherwise you will be much relieved from extra labor, expense, and vexation, if you relegate the old rags to the waste-heap.
New York. E. RAMBLER.

No, sir; the enameled cloth under the covers would be an objection and an annoyance, either for queen-rearing or any thing else, with either strong or weak colonies. If you don't believe it, just try it. No doubt some of my brothers will answer this question to the contrary; but I am just as sure they are mistaken and behind the times in quickly and profitably manipulating bees, as I am that the sun is now shining, and it shines very brightly here this morning.
Michigan. S. W. JAMES HEDDON.

In all the answers to the above, no one has mentioned mashing bees when the cover is put on. The great reason why I prefer enameled-cloth sheets is, that the hive may be opened and closed without killing bees. The use of the enameled cloth also prevents the bees from getting along the edges of the cover, to wax it down with propolis; and it is worth a good deal to me to be able to pick up any cover from any hive in the apiary, without any snapping or prying. By the proper use of the enameled cloth, the covers may be kept so clean that they will lift up as easily as the cover or lid to any chest or box. It takes time, I know, to replace the enameled cloth in such a manner that not a single bee can get above it. I suppose every one will have to decide for himself whether he cares to take the pains to secure this result or not. When I go into an apiary and find the covers of the hives waxed and glued down with quantities of smashed bees which have accumulated from time to time whenever the hive has been opened, I feel very much inclined to be disgusted with the whole industry. I can not be happy, and enjoy my work with any such thing in sight. More than that, the thought of it haunts me and gives me a sort of guilty conscience, even after the hives are closed and I am away off somewhere else. It was for this reason I invented the metal corners, and afterward adopted the enameled sheets to keep the bees en-

tirely away from the covers. I am well aware, that the large honey-producers have pretty much all discarded my appliances in this line; but if I were going to raise queens I would most assuredly use the metal corners and metal rabbets; and I would also insist on having every nucleus hive, as well as every other kind, closed every time, so that not a bee should ever set foot on the inside of the cover. I know it does take a good deal of nice and exact work to have the enamel cloths fit down in their places bee-tight. The enameled cloth also prevents the bees from pushing up burr-combs above the tops of the frames. A good many accomplish the same result I have mentioned, by having close-fitting top-bars; but, of course, you can not well use metal corners with these. Some of our friends, years ago, did the same thing by having strips of wood to close the spaces between the top-bars. This idea may be in use now. It takes some time; but I confess it looks very neat and pretty to see the top-bars as clean and free from propolis and wax as they were when they left the buzz-saw.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

THE PRESENT WINTER.

To the human being who loves God and all his works, and who loves his fellow-men, there is something new and bright and wonderful about each new day. Yes, and there is something new and wonderful about each new season as they come and go in their turn. No winter was ever just exactly like any other winter; and this present winter is—I came very near saying a *bright* exception to any other winter we have ever known. I did not say "bright," however, because so many of my good friends might open their eyes and mouths in astonishment to think I should call it bright when it has rained almost daily for nine or ten weeks, and when the roads have been almost impassible for, may be, a longer period. Our village of Medina is celebrated for its mud, but we never had it in such profusion before. I presume it is much the same with most of you. In fact, the reports all through this number of GLEANINGS, of maple-trees in bloom in Christmas time and in January; of bees gathering honey from different plants, even in midwinter, attest the fact that there is something very strange and unusual with the weather. Somebody has said that the Gulf Stream has started in a new course, and is flowing closer to the southeastern part of our shores than ever before. If this is true, we shall probably have California winters here at our homes instead of being obliged to go so many thousands of miles to find a perpetual spring in winter time.

Well, I have hardly dared to tell anybody, but yet I have been enjoying this winter amazingly. Not only is spinach growing in the open fields, but at this present date, Jan. 10, our cabbages that did not mature in the fall are slowly heading up. Nice lettuce is still to be had from the open ground, as well as radishes, turnips, celery, onions, and all these things that stand unharmed outdoors, away down south, in ordinary winters. The strawberries are growing beautifully, and, by the way, so are certain weeds; and I have actually had boys weeding strawberries in January. My project of having a greenhouse, so it could be open to the rain and sun, works beautifully during this present winter; and in our plant-beds, warmed a little underneath by steam, we are just having the nicest kind of garden. The weather was so fine in October that I said to one of the boys, "Fred, suppose you rake in some lettuce-seed here on this bed. It will take but a few minutes; and if this weather continues we may get some nice plants to set in the greenhouse when it gets too cold for them out here." Now, I like the fun of trying experiments, and of taking the chances, especially where the ground is ready, and when it takes only a few minutes to put the seed in. Those lettuce-plants are still unharmed. The Grand Rapids is, however, all sold out, and we are getting orders for them by the thousand, even yet, at the low price we offered them last month—$1.50 per 1000. Six square feet of ground has brought us quite a little money, and with almost no outlay. The growth is so slow that they have made great bushy roots, but small tops. Our cabbage-plants in the cold-frames took hold and grew to such an extent that they became crowded; so we made a nice bed beside the lettuce, right in the open air, and they have taken root, and are doing nicely, with no protection whatever.

Now, there are a thousand other things to interest the child of nature who loves God—yes, and to put money in his pocket, if he is watching and waiting, and expecting some new gift every day. Just a morning or two ago, as soon as it became light enough to see, I was astonished to see the ground covered with great plump angleworms. The warm rain had brought them out, and they were even up on the sidewalks, so long and so large that the children might be excused for calling them snakes. I saw Mr. W. preparing to feed the chickens corn as usual.

"No, no!" said I; "don't give them a kernel of corn. Make them go out and eat worms."

It was my good luck to see the Brahmas, when they first started forth, when it was hardly light enough to see. My young three-dollar rooster saw the worms first, and, in obedience to his call, the old biddies paddled out; and, oh my! but didn't they just help themselves! Eggs were 25 cts. a dozen, just then; but last night the storekeeper said they paid only 15 cts. now. I wonder how many of our poultry-loving friends enjoyed the sight as I did; and did they enjoy the eggs, and see what brought them? We are going to put out more plants to-day.

May be they will all be frozen up; but, never mind.

I have not yet got over my hobby for a greenhouse that gives the plants protection from frost, and still lets them have every drop of rain and every bit of sunshine. A hint from one of our gardening periodicals has given me much food for thought. They were speaking about getting early asparagus by protection with glass. Now, we have the same state of affairs in *this* matter. The glass must be manipulated constantly, or you will have trouble; and even if you do try to manipulate it, the first you know the sash will be on when it should be off, and off when it should be on. The suggestion that pleased me so much was this: Place the sash two inches apart, and they need not be handled at all. The two-inch space would let out the hot air, and would not let in very much frost. So far, so good; but the rain could have access only in that two-inch slot. I will now tell you my plan: Make some sash of some strips of glass, say two or three inches wide. May be six or eight would answer; but I think two inches would be better. Instead of having the glass lap or even abut, place them say ¼ inch apart. All the rain can get through, and a narrow strip of glass, I think, would cause little if any drip, to do any harm; and if the glass is close enough, there will be quite a protection from frost. When covered with snow, it would be just as good as any sash. May be an eighth-inch opening between the strips of glass would be enough for ventilation and rain. During cold dry weather, such a sash might not keep out very much frost, unless, in fact, the joints were so small they would fill up with frost. I am going to test the matter right away. Some of you may say, "Why not use cloth so coarse as to permit the rain to go through?" Why, friends, I have had such bad work with cloth that I feel as if I never wanted to fuss with it any more. It bags away down under the weight of the rain, and it rots and tears; the wind flops it, and the sashes blow away, while glass stays where you put it. A friend has asked the following questions:

Mr. Root:—How much will 3 x 6 feet hot-bed sash, filled with glass, cost me? I can get 12 second-hand sash for $1.00 each. Now, I wish to know what crops I can raise to make any money out of them. Will lettuce and cucumbers, started in hot-beds in March, and transplanted into cold-frames, mature much in advance of those planted in the open ground? Will it pay? What crops can I grow in cold-frames, and what profit may I expect? By answering through GLEANINGS you may benefit others besides myself. JOHN MAJOR.

Cokeville, Pa., Dec 26.

Regular cold-frame or hot-bed sash, such as you describe, are quoted to us in Cleveland at $1.75 each. If you can get second-hand ones at the price you mention, by all means get them. Then with a putty-bulb and some liquid putty, as described on page 755, last year, make them all tight. It is the easiest thing in the world to start lettuce in the way you mention, and to get it ahead—yes, very much ahead of that outdoors—that is, in ordinary seasons; but the cucumber is a tropical plant, and needs great care and skill. We have tried almost every year to get them in the way you propose, ahead of those from seeds planted in the open ground; but we have never succeeded in getting them more than a week or ten days ahead. The lettuce pays tiptop, but we have not succeeded in making the cucumbers pay very well. Where you mention *cold-frames*, I suppose you mean to work entirely without manure. Now, a little manure is a very great help. If, however, you can not get it handy, you want to get a location for your cold-frames that cuts off cold winds, and at the same time gives you every bit of sunshine. Locations in the corners of buildings can sometimes be found. Buildings are, however, apt to cut off the sun more or less. If there are hills and mountains near you, choose a warm valley, protected by hills—better still by overhanging rocks, dense forest, or any thing of that sort. The crops to be raised are asparagus, early beets, early carrots, cabbage-plants and cauliflower-plants, celery-plants, cress, kohlrabi, lettuce, onions (especially the Egyptian), parsley, American Wonder peas, radishes, spinach, tomatoes, and, if you choose, Early Ohio potatoes. Of course, potatoes are to be only started until they are about as tall as cabbage-plants. Plant them three or four weeks before you can set them safely in the open ground. Rhubarb is also a very profitable plant to force in a cold-frame; and of late, quite a little is done in cities with dandelions. The profit depends entirely on your market; and if you are not near a very large city, very likely your market will have to be worked up, in the way I have described in our book, "What to Do."

CONVENTION NOTICES.

The 21st annual meeting of the New York State Bee-keepers' Association will be held at the Court-house, Rochester, N. Y., Feb. 5, 6, 7, 1890. Reduced rates at hotels, and on all principal railroads. Each county association is requested to send two or more delegates. Programme and full particulars will appear in due time. G. H. KNICKERBOCKER, Sec.

The Eastern New York Bee-keepers' Association will meet in convention, Jan. 20, 21, 1890, in Agricultural Hall, Albany, N. Y., at 10 A. M. All interested in bee-keeping are cordially invited to attend. Farmers' institute is held at the same place, Jan. 22, 23. W. S. WARD, Sec'y.

Fuller's Station, N. Y.

The sixth annual meeting of the Wisconsin State Bee-keepers' Association will be held in the capitol building, at Madison, Wisconsin, Wednesday, Feb. 5, 1890. An interesting programme has been provided, and prominent bee-keepers will be present from this and other States.

DR. J. H. VANCE, Sec., Madison, Wis. C. A. HATCH, Pres., Ithaca, Wis.

The next annual meeting of the Vermont Bee-keepers' Association will be held at Burlington, Vt., Jan. 21, 22, 1890. Excellent hall accommodations have been obtained at the Van Ness House. The Vermont Central Railroad has granted round-trip tickets from the following places: Rutland, White River Junction, Cambridge Junction, Richford via St. Albans, Ticonderoga, and intermediate points, to Burlington and return, for fare one way. A good meeting is expected, and all are invited. For further information and programmes, apply to J. H. LARRABEE, Sec'y.

Larrabee's Point, Addison Co., Vermont.

The 12th annual meeting of the Nebraska State Bee-keepers Association will be held in the Lecture-room of the Nebraska Hall State University, Lincoln, Neb., Jan. 15, 16, 17, 1890. Every bee-keeper, and lover of honey, is invited to meet with us. The Horticultural Association meets at Lincoln at the same time, and arrangements are now being made to hold joint sessions. I shall take pleasure in receiving and placing on exhibition any article used in connection with the apiary, that may be sent to me at Lincoln, express prepaid. J. N. HEATER, Sec.

Columbus, Neb., Dec. 23.

Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from $1.00 to $1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

TOO WARM IN THE CELLAR.

I love to go to Sabbath-school. My papa is a blacksmith, and he also keeps bees, and is in the supply-business. He put seven stands into the cellar, but had to take them out again, as the weather was too warm and they worried too much.

Killbuck, O., Jan. 8. NELLIE BAUER, age 8.

A SWARM THAT WOULD CLUSTER ON HIGH LIMBS.

Papa likes to take care of bees, and to watch their movements at work. He transfers bees for people. Last summer I helped watch them in swarming-time. One swarm went to the woods and alighted on a big maple-tree, nearly fifty feet from the ground. Papa climbed up the tree and sawed the limb off, and the bees dropped off and went to a big beech. He then sawed off that limb, and then caught them in a big bag, and hived them and brought them home, and they went to work right away. EDITH M. CAYWARD, age 11.

Hall's Corners, N. Y., Dec. 30.

A SWARM OF BEES FOR A PIG; ENGLISH WHITE RABBITS.

Pa has 18 swarms of bees. I thought I would try bee-keeping, so in the spring I bought a pound of bees (including the queen) for two dollars, and kept them over summer till fall, then I traded them off to pa for a pig. I am a temperance boy, and do not intend to smoke, chew, or drink. I have a pair of English white rabbits with pink eyes. Their food in the winter time is clover hay, oats, apples, bread, and crackers. My cousin George gave them to me when they were quite young. They have grown finely. I keep them in a large box at night, and in the day time I turn them out on the barn floor. ALBERT BORTON, age 11.

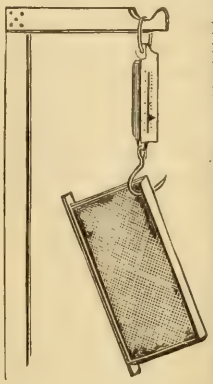
Flint, Mich., Dec. 26.

LOSS FROM A FLOOD.

I wish to relate a few serious accidents which happened to my father's bees. He started in with two stands, which he bought of a negro in Hondo City some two or three years ago. From those two stands he increased up to 52, which were nearly all Italian bees. I believe he got a queen from you; anyhow, it was in 1887 that he had the misfortune to lose them all by a heavy rainstorm that fell. It rained for six hours as hard as it could pour down. Pa, having the stands in a low place, the water rose so high as to lift them up off the ground, and then they all turned over and froze and drowned together, so that we lost every one of them. We did not even save a stand to get a start from, so we are without bees now. I am trying to get a start now, in hopes of doing as well as papa did before he lost all of his. FRED J. HAILES.

Hondo City, Texas, Dec. 19.

HOW PAPA WEIGHS HIS FRAMES.



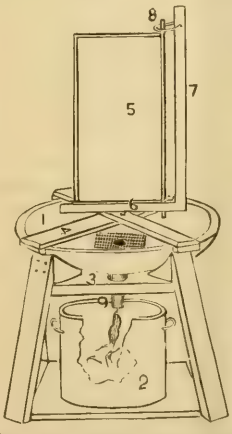
I will show you how papa weighs his frames in autumn, to see if his bees have enough honey for the winter. The scale shown in the picture is one of your 10-cent scales. Papa says my pole is too short in comparison with the other things seen in the picture. It is to be 1x2, and 6 feet long.

FREDDIE H. GRAEPER, age 11.

Westphalia, Ind., Dec. 23.

Very good, friend Freddie. But after a little experience in weighing we think you and your papa can *guess* at the weight, at least near enough for all practical purposes. That's the way we do.

PAPA'S UNCAPPING-BOWL.



I will try to explain to you papa's arrangement for uncapping his honey. In the picture, No. 1 is a wooden bowl about two feet across. No. 2 is an eight-gallon jar. No. 3 is a board on which the bowl is fastened with a screw. No. 4 is a cross laid on the bowl, fastened with cleats. No. 5 is the frame of honey. No. 6 is a piece of wood screwed to the cross so that it can be turned around. No. 7 is an upright piece which is fastened on one side of the piece which can be turned around. No. 8 is a loop of wire used to hold the frame. No. 9 is a hole and a piece of tin in it for the drippings. At the bottom of the wooden bowl is a rack made of pieces of wood nailed together. The use of the wooden bowl for uncapping honey is not papa's invention. He found it in an old GLEANINGS. But the upper part is papa's invention. It improves it very much. He can uncap both sides before he puts it in the extractor, by turning the part on top of the cross, as both sides can be uncapped at the same time, if there are two at work. He never has any trouble by combs breaking for him, even if they are not wired, because the frames always stand upright. Papa has used it about five years already.

EMMA GRAEPER, age 9.

Westphalia, Ind., Dec. 4, 1889.

Thanks, friend Emma, for your excellent description and drawing. The device may in some apiaries prove to be very handy. We should be glad to have some one else make one and try it, and then report in GLEANINGS. The only possible objection to it is, that there may be too many "fixins" about it.

GRANDPA'S BEES; PACKING FOR WINTER IN MATTED HAIR.

Grandpa has 47 colonies of bees, all in Simplicity hives. He is wintering them on summer stands, packed in maple leaves, gathered from the trees in the street. He puts a large case around each hive, then fills it with the leaves. My grandpa thinks that matted hair is the best thing to pack bees in for winter. Matted hair, such as is used for winding steam-pipes, to prevent the condensing of the steam, is what I mean. Make the hair into mats and cushions, to fill in on the sides and top, and fill dummies for the inside of the hive.

SIDNEY G. GORDEN.

Athens, Pa., Dec. 23, 1889.

PAPA'S BEES AND MY TAME DOVES.

Papa has 56 colonies of bees. We had a good crop of honey last year. He shipped his best honey to Cincinnati. Papa had two colonies cast a swarm that skipped to the woods, without clustering. We saw them come out, and followed them a distance. I had two pairs of doves. One pair was white, and one colored. A cat got at the white pair, and cut a gash with her teeth in one's neck, and killed one of them. Papa saw the cat come after the other dove, and he shot the cat. Another cat got the other white dove. The second pair, one of them died because it ate too much. The other, a cat ate.

Greene, Ia., Jan. 5. CHRIS. SHIRER, age 12.

A COLONY OF BEES THAT HAD DOMICILED UNDER SOME BRANCHES IN THE OPEN AIR, AS REPORTED BY A JUVENILE.

I wish to tell you of a swarm of bees that was found in the open air by a German who worked three miles from home. On coming home one Saturday night he came across the lots and woods. Just before he emerged from a thick piece of woods he stepped upon a large log, and walked toward the top of the tree. As he got near the top, where the branches spread out as large as a man's thigh, he jumped off on to the ends of the limbs; and as he did so a lot of bees came after him, and stung him badly. He looked closely up under the branches, and saw honey-comb hanging down. He came after father; and when father went up there to get the honey and bees, he said he was surprised to see so much old comb. Some of it was old, and black as tar, and some of the honey was candied down quite hard. The bees had attached their combs to three of the branches, where they had grown out near the main body. The branches stuck up nearly three feet from the ground, and the combs were as large around as a bushel basket, and came almost to the ground. Several pieces of old combs had dropped off, and something had dragged it further under the log, and eaten some of it. The top was well protected from the weather by the large limbs, and by brush that had been thrown upon the large branches by wood-choppers several years before. Father said the bees must have been there three or four years, by the looks of the combs, and a bee-hunter had lined bees into that very part of the woods, but could never find them, because he always looked up into the high timber for the bees.

The German got four large pails of honey. Some of it was nice, but most of it was old and black. Father got the bees, and a lot of old combs for wax. I have been to Sunday-school almost every week for three years, and I learn from 7 to 15 verses to repeat. FRANK REED, age 9.

Milford, Wis., Jan. 1.

OUR HOMES.

Thou hast loved righteousness and hated iniquity.—HEB. 1 : 9.

THE above words were addressed to Christ Jesus our Savior; and they were spoken by God himself unto his only beloved Son. We gather this from the eighth verse of the first chapter of Hebrews, the verse above the one from which our text is taken. This verse commences, "But unto the Son he saith." The latter part of the verse reads, "A scepter of righteousness is the scepter of thy kingdom." By referring to the margin we see that the word "righteousness" may be supplanted by "straightness," so as to read, "A scepter of *straightness* is the scepter of thy kingdom." As I use this word righteousness again a little further on, you will please keep this thought in mind. Now, please notice that the words of our text are the language of the great God of the universe to Jesus Christ his Son. "Thou hast loved righteousness and hated iniquity." The remainder of the verse reads, "Therefore God, even thy God, hath anointed thee with the oil of gladness above thy fellows." There is something to me wonderfully interesting in this thought, that God himself spoke words of commendation and praise to Jesus the Son of God. He spoke words of praise and kindness to his own child, as you, dear reader, may possibly have spoken them to your own child. What does this imply? Why, it implies the wonderful thought that Jesus, like ourselves, had the freedom to choose between righteousness and iniquity. In one sense there was a *possibility* of his having chosen iniquity. The way was open before him as it is before us; and he might have given way to foolish, silly temptations, had not his love of truth and purity and goodness prevailed over human weakness. He chose, of his own free choice, *righteousness*, and God was *pleased* that he did so. He *loved* him; and just think how feebly *we* are able to comprehend *God's* love for Christ the Son of God. Oh how I do wish I could write this bright morning only of love and goodness and purity! How I wish I could be helpful to you by speaking only of that class of humanity who do *love* righteousness and *hate* iniquity! but I know from past experience that I can not be helpful to you unless I point out the evils we are to guard against; and I can not do this unless I tell you of my own actual experience. Your letters tell me day by day that the *practical, every-day occurrences* that I bring in here are the ones that do you good. Now, do not be troubled,

friends, if you are led to feel that the Son of God was the *only* human being who ever lived, who really and truly, with every breath he drew, *loved righteousness* and *hated iniquity*. You have given *me* credit for being one who loves righteousness and hates iniquity in an eminent degree; but you do not know, dear friends, how much I have found in my heart, day by day, leaning toward the side of iniquity. Some of my best friends will doubtless say, "Why, dear Bro. Root, you are mistaken. We are sure it can not be true that *you* love iniquity in any shape or form." I wish it were true. Oh how I have prayed that I might have no lingering thought or longing for that which is evil! How I have prayed for strength and grace to love my *neighbor* as myself, and that, by no careless thought or action, I might indicate to the great keen scrutinizing world, that I *covet* any thing that is not my own, or that God has not seen fit to give me!

We never before have had so much business in the month of January as we are having now. We have enlarged our facilities and put in new machinery. The good friends in the tin-room have been squeezed into one corner, as it were. A whole gang of seven new machines for sawing sections has been put in operation, and the saws are buzzing now. Our two large boilers are doing their part nobly in furnishing steam. New hands have been called in by the dozen, and more boys have been made happy (at least I hope so) by being permitted to work in supplying the machines with blocks, and carrying away the sections. All these friends have to be asked the old stereotyped questions when they come to work—"Do you swear, drink, or use tobacco?" We get along with the two first questions very well. There are not many who get drunk around Medina nowadays, and there are not many, I believe, who are so much in the habit of swearing that it is very much of a task to break off. With the tobacco-pledge, though, comes trouble; and I have been forced to the conclusion that it is not wise to employ anybody who proposes to break off for the sake of getting a job. It rarely works well. It is not a wise thing to do. If one breaks off, and proposes to stay "broke off," whether he gets a job or not, all well and good. Such a man or boy is safe to trust. But the other case is different. He who stops because he may thereby get work, pretty soon begins to question my "right to dictate," etc. With more hands in the work-rooms comes the need of more clerks in the office, and therefore more girls and women are permitted to occupy the places they have long waited for. Now, it is rather dangerous ground for any person, when he begins to sum up the weaknesses of humanity, especially of his friends and neighbors, and those whom he meets day by day. Lest I get into this dangerous rut, permit me to say that there are a good many in our establishment whose daily talk and acts indicate unmistakably that they love righteousness and hate iniquity. Oh how I *do* love to meet with *such* boys and girls! It is a pleasure for me to be in their companionship, to guide and direct them about their work. It is a pleasure for me to look into their faces, and to hear them speak; for one who does love righteousness and hates iniquity shows it in almost every movement. When I feel tried and troubled because of the foolishness of others, I fervently thank God for these bright jewels, as I might almost term them. In fact, one of the prophets of old has thus named them. Old Malachi says, "They shall be mine, saith the Lord of hosts, in that day when I make up my jewels." I have often said in my heart, as well as when I kneel down in the factory before daylight in the morning, "O Lord, I thank thee thou hast been pleased to send here such a *good* boy as John Smith. I thank thee thou hast increased my faith, and given me new hope, by giving me now and then a man or woman, or a boy or a girl, who loves righteousness and hates iniquity. Help me, O Lord, to appreciate these jewels; and may the *thought* of them help me to be patient, and to bear with the others." And now, my friend, let me tell you that these unselfish, self-sacrificing ones are sure to rise anywhere. In our establishment there is a sort of cabinet, or band of officers, perhaps you might call it, that has sprung up of itself as it were. This cabinet comprises the heads of the different departments, those who have charge of rooms, and those who by long years of faithful work have shown themselves capable of judging impartially. Sometimes, as we meet, one of these foremen remarks to me: "Mr. Root, have you noticed how nicely James Brown is doing? If he but continues to do as well as he is doing, and does not get led off from the track by some of the mischievous ones, you can afford to pay him more money than he is getting now."

In discussing some of the older ones, the remark will be made, "That man is competent to take charge of the room, if the foreman should be sick, or any thing of that sort;" and as vacancies are occurring almost every day, there is a constant demand for some one who can be entrusted with authority. Then comes the test, and very likely the trial to the young friend in question. How will he behave when vested with *authority* and *power?* Will he let prejudice bias him him, or will it be his only thought to encourage *righteousness* and discourage *iniquity?* These jewels are bound to rise, whether they are in our establishment or somewhere else. They work gradually up, up. Some people complain that *the chances* have been against them. My friend, "the chances" are *never* very *long* against one who loves righteousness and hates iniquity. We have God's holy word for it in a dozen different ways. "All things shall work together for good to those that love God." Now, I hope that some of you are saying in your hearts, "Bro. Root is right. I know he is right; and I wish to begin this very day to love righteousness and to hate iniquity. How shall I do it?" Perhaps I can tell you best by indicating some of the things that you should *not* do. A great many times, boys and girls come to work

for us, with the understanding that they are to have *all they are worth;* and the foreman of their room, together with my advice, is to decide by Saturday night. How can we tell about how much a boy is worth, in four or five days? Well, my friend, those who are old and experienced in the matter will tell a great deal. If the new comer commences very soon to run about the establishment, under various pretexts, it is against him; or if he goes for a drink oftener than people usually do, and stops a little on his way back. Other ones will stop every little while to see what time it is. Among our smaller boys, one of the worst troubles is *playing* during working hours. Of course, we make due allowance for boyish spirits; but when, after he has been frequently reproved, we find a boy who is very sharp to see when the "boss is around," but ready to commence gossip or play just the moment he is called out of the room, we can not help concluding that such a boy loves iniquity, and has no fixed purpose in his heart to look out for the interests of the business instead of trying to see how he can pass the time until noon, and do the *smallest possible* amount of work. This kind of spirit is not by any means confined to boys alone. One day I noticed one of the saw-tables standing idle. After a little time I found the man whose business it was to run it, gossiping with one of the girls upstairs in another room. He gave, as an excuse, that the sun shone in his eyes so he could not work, and that he came up to that room to get a piece of burlap to tack up for a curtain. I was pretty sure it was a pretext, and the same man soon had to be discharged, because he was not fit to work under the same roof where *respectable women* were. He *loved* iniquity. The bent, disposition, or the purpose of the heart, is revealed to the practiced eye, not only in three or four days, but sometimes in three or four hours.

What a sad thing it is, to think that people delude themselves with the thought that they can cherish iniquity on the sly. My friend, if the only sin you are guilty of is *sinful thoughts* you can not hide even that. You can not hide it from God, and furthermore you can not hide it from your fellow-men. It will surely *tell its own tale.* Why should we be guilty of any such folly? I say *we*, because I am myself a sinner in this very line. More than once since I began writing these words (two or three days ago) I have been stopped from some sinful thought or sinful act by asking myself the question, "Does this indicate that you love righteousness and hate iniquity?" Conscience spoke out very *clearly* and *unmistakably*, "It comes from the side of iniquity," and I was saved.

I wish to say a word more in regard to these faithful ones—these jewels I have alluded to. Each new comer must be, of course, watched for a time, or measured, as it were. We do this as a matter of business, to gauge his money value. We try to pay every one as nearly as possible what he is worth, and therefore he must be weighed in the balance. It is true, that some of these friends have had poor advantages. May be they have been in bad company, and have had improper bringing up. We try to make allowance for all this. A few days ago the foreman of the saw-room pointed with his thumb toward a certain boy who has not been here very long. After watching him for a few minutes I turned back, and we both had a good laugh. Some of the others caught our glances, and laughed too. The joke was, that this boy was so *exceedingly* slow and deliberate in his motions. I looked toward his eyelids to see if he was not going to sleep. His eyes were wide open, but his motions were so slow that he was worse than no boy at all. He occupied a place at a machine where a smart boy would have done in two hours what he was taking half a day for; and even had he proposed to work for *nothing*, it would have been better to send him away, and put a good boy in his place, who could earn wages. Now, young people sometimes work in this way without thinking. If, after talking with him about it, and stating the case to him plainly and kindly, he does no better, we shall have to let him go. "Do such boys *ever* do any better?" you ask. Oh! yes, my friend. Some of the swiftest workers we have were guilty of the same thing when they first began. Don't be in haste to ascribe every shortcoming to loving iniquity. If, after a boy has been talked to, he should work fast when the boss is near, and then go back to his slow gait, it would indicate an evil purpose in his heart. Such things are often the result of thoughtlessness. A kind word from the employer, suggesting that they can give better pay when he learns to work faster, will oftentimes have the desired effect. It is our business to measure the money value of these young friends as nearly as we can, as I have said. To do this, they must be watched. But now comes an encouraging point: After having decided that an individual is faithful and honest and true—that he loves righteousness and hates iniquity, we very soon cease scrutinizing so closely his work and his behavior. We do not look any more to see whether he marks his time on the slate conscientiously, nor do we look after him at all. The general result *accomplished* is measured and estimated—that is all. As he steps from one post to another, he is honored and respected still more. Finally, instead of getting so much an hour, he is invited to look after the general interests of the establishment. He is, perhaps, paid a salary, and he need not mark his time on the slate, as the others do. He is expected to give his strength, energies, skill, and abilities, to the general welfare of the business. Outside of working-hours he is planning new machinery or short cuts to facilitate the business, as if it were all his own. His employer knows it, and *pays him* for this working, even when he is away from the establishment. Now, contrast such a one with the one who is constantly planning, not *for* his employer, but to *defraud* him. The difference between the two is all summed up in the thought of our text: One loved righteousness; the other, iniquity. Planning for yourself, when you have been hired

to plan for your employer, is, without question, iniquity.

It has been suggested, that the reason why I have so many trials from inefficient help, is, that people are constantly coming to me for employment who have been turned off everywhere else. Very likely this is true, and they very soon get turned off from *our* place. Nobody wants them anywhere, because they propose in their hearts to labor *solely* for self, no matter what the agreement may be. There is no end to the troubles that continually come up and accumulate on the head of him who loves iniquity. It follows him through this life; and the Bible assures us that it goes on in the world to come, and we do not know where the end is, nor the limit. On the other hand, there are promises to those who love righteousness, that are beyond what the imagination can conceive, or the tongue can tell. To those who are heart and soul devoted to the Kingdom of God and his righteousness, the promise is that *all things* shall be added unto him. And finally, when death shall come, as it must come to us all, what is there in all this wide universe that can so cheer a dying-bed as to hear it said by friends and neighbors, that the departing one loved righteousness and hated iniquity? And when we are about to pass down through the dark waters, who can measure the joy that comes with the ushering-in of the new life, when the dear Savior bids us welcome, with the words spoken to him by the Father—Thou hast loved righteousness and hated iniquity—"enter thou into the joy of thy Lord"?

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

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For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 15, 1890.

I the Lord have called thee in righteousness, and will hold thy hand, and will keep thee.—ISA. 42:6.

THIS issue is eight pages larger than usual.

HONEY-PLANT SEEDS WANTED.

WE are out of figwort seed, horsemint, and motherwort. If any of the friends have fresh seed, or seed that will germinate freely, we should be glad to hear from them.

THE Cortland Union Bee-keepers' Association will hold their annual meeting at the W. C. T. U. rooms in Cortland, N. Y., Tuesday, January 28, 1890, at 10 o'clock A. M., sharp. M. H. Fairbanks, Sec.

THE Ohio State Bee-keepers' Association will meet in joint convention with the Northeastern Ohio, Northern Pennsylvania, and Northwestern New York Bee-keepers' Association in Cleveland, on Wednesday and Thursday, Feb. 19 and 20. A full programme and particulars, and announcements in regard to railroad rates, will be given later.

SILO AND SILAGE; A NEW EDITION BY PROF. COOK.

THREE thousand copies of the first edition of this little book were sold in about eight months, and friend Cook has now gotten out a new and enlarged edition, fully illustrated with excellent engravings. The pictures are worth alone to me a good deal more than the 25 cts. The whole matter is treated in friend Cook's happy way of making things plain. We can send the book postpaid by the first mail. Price 25 cts.

REPORT OF THE MICHIGAN CONVENTION.

A MUCH more complete report than the offhand one I have given will be found in the *American Bee Journal* for Jan. 11. The *Journal* comes promptly once a week, and at the low price of $1.00 per year; and as it is the old veteran among all the bee-journals, it seems to us that almost every bee-keeper, big or little, ought to be able to afford it. Ernest remarks, that it always comes here every Thursday —no postponement on account of the weather, and that is more than can be said of any other bee-journal, for promptness, not excepting GLEANINGS.

WIDTH OF TOP-BARS, IN CONNECTION WITH THE DISTANCE FROM CENTER TO CENTER OF THE FRAMES IN THE BROOD-NEST.

IN the article on brace-combs in last issue, some of the friends recommend a top-bar 1⅛ inches wide. Now, it is quite evident that those who give the preference to this extra width expect to space their combs 1½ inches from center to center; for should they bring them so close as 1⅜, as other writers in the same article recommend, there would hardly be room enough to handle the top-bars. In discussing the width of top-bars we should always consider how far apart the combs are to be spaced.

WISCONSIN BEE-KEEPERS' CONVENTION.

WE are informed by the programme which is just now being printed, that this will take place Feb. 5, in the Capitol building, Madison. I have heretofore felt a little backward about mentioning here that I expected to be present at certain State conventions. As I find, however, that a good many feel somewhat disappointed to know they have missed the opportunity of meeting me, I have thought best to tell you a little beforehand that I expect to be present. Dr. C. C. Miller has promised to go with me, so it is pretty certain that we shall have an enjoyable time. I shall be very glad indeed to meet and renew the many pleasant acquaintances made while there in July.

CHRISTIAN SCIENCE.

A GREAT number of letters have been received in regard to the above, and I am very glad to say that all have been written in a very kind and Christian-like spirit. Did space permit I should be glad to give place to many of them. Dear friends, the principal thing I find to object to in Christian Science is, that it sooner or later attacks our established ministers of the gospel and our established churches. The plea, that Christ Jesus himself severely denounced in his day the priesthood, I can not accept as an excuse for finding fault with the Christian ministers of our land. I do not think for a moment that they can be classed with the Jewish priesthood, that had only the outward form, and not a submissive spirit at all.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of queens, bees, and apiarian supplies in general, from the following parties, who will be glad to furnish them to applicants. Those marked with a star (*) also deal in fine poultry.

A. G. Hill, Kendallville, Ind.
W. D. Soper, Jackson, Mich.
M. H. Hunt, Bell Branch, Mich.
G. B. Lewis & Co., Watertown, Wis.

From our own press appear the following for the parties named:

P. L. Viallon, Bayou Goula, La.
John Nebel & Son, High Hill, Mo.
J. F. Michael & Co., German, Darke Co., O.
J. M. Kinzie, Rochester, Mich.
Geo. E. Hilton, Fremont, Newaygo Co., Mich.

Wants or Exchange Department.

WANTED.—To exchange bee-supplies for printing to the amount of about $25, or for good new sewing-machine. WM. H. BRIGHT,
2d Mazeppa, Minn.

WANTED.—To exchange a few trios of White Wyandottes and Plymouth Rocks, for foundation and 1-lb. sections. These are very fine stock.
2tfdb T. G. ASHMEAD, Williamson, N. Y.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars. CHAS. DADANT & SON,
18tfdb Hamilton, Hancock Co., Ill.

WANTED.—To exchange all kinds of wall paper, for honey. J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation.
1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange young Italian queens for 1-lb sections or foundation-mill. Queens ready to ship now, by first mail. I guarantee satisfaction. J. W. TAYLOR,
2-3-4 Ozan, Hempstead Co., Ark.

WANTED.—To buy an apiary in the basswood region of Wisconsin. Preference given to a place where there is a chance to establish out apiaries. Please send your answers to GLEANINGS office.

WANTED.—By an experienced apiarist, a large apiary on shares; or would purchase, if little cash is required down. Address G., Box 226.
Williamson, N. Y.

WANTED.—To exchange a portable feed-mill, 4-horse-power engine, and small saw-arbor, for a foundation-mill, type-writer, photograph outfit, or offers. J. B. OVEROCKER,
2d Melrose, Rens. County, N. Y.

WANTED.—For May delivery, 500 colonies Italian bees in Simplicity or Langstroth hives. State number, and price on cars. GEO. E. HILTON,
2d Fremont, Newaygo Co., Mich.

WANTED.—To correspond with parties having potatoes, apples, onions, cabbage, or honey, to sell or consign. All letters promptly answered.
EARLE CLICKENGER,
2-3d No. 119 South Fourth St., Columbus, O.

WANTED.—To exchange a lot of Italian and hybrid bees in L. frames, 600 L frames, 1 Given press, L. size, dipping-board, tank, 50 sheets wax, for a screw-cutting lathe, or a compound microscope, or music for the "Pneumatic Symphony."
2d L. HEINE, Bellmore, Queens Co., N. Y.

WANTED.—To exchange a sewing-machine for sections or foundation. C. J. HUBBARD,
2d Simonsville, Windsor Co., Vt.

WANTED.—To exchange a good second-hand organ for 400 lbs. of good nice comb honey. The organ is five octave, has 13 stops, 2 knee-swells, an octave coupler, and is worth $80.
2d C. P. KYZAR, Ridgeway, Howard Co., Ind.

WANTED!!! I want a man to take charge of an apiary. F. D. LACY,
2-5db Nirvana, Lake Co., Mich.

WANTED.—Situation with bee-man, by a young man 25 years of age, four years' experience.
2d H. DEXTER, Preston, Grant Co., Wis.

WANTED.—To exchange Turner red-raspberry plants for strawberry plants, peach-trees, or bee-supplies. EARLE CLICKENGER,
2-3d No. 119 South Fourth St., Columbus, O.

WANTED.—To exchange two bird-cages, in good order, size 22x13, and 14x9, for offers.
2d GEO. W. MILES, Teepleville, Craw. Co., Pa.

WANTED.—To exchange 100 cherry-trees for 20 warranted queens or 4000 dovetailed sections.
2-3d JAS. HALLENBECK,
Altamont, Albany Co., N. Y.

WANTED.—To exchange choice Italian queens, Stanley Automatic Honey-Extractor, large size (new), Heddon hives, or full colonies of Italian bees, for a combined Barnes foot-power saw.
2tfdb E. D. KEENEY,
Arcade, Wyoming Co., N. Y.

WANTED.—To exchange iron tables, for foundation or one-piece sections, $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{1}{16}$.
2d LESTER HOLCOMB, Groton, Tompkins Co., N. Y.

NOW WE HAVE IT!

Bees made to hive themselves when they swarm. The simplest and most useful implement used in the apiary. Just the thing bee-keepers have demanded and felt the want of for years. Full particulars. Address

The American Apiculturist,
WENHAM, MASS.

A BARGAIN FOR SOME ONE.

We offer free on board cars at Java Center, Wyoming Co., N. Y., 1500 prize sections, $5\frac{1}{4}$ x $6\frac{1}{4}$, one piece, for $3.00. They are the old square groove, made several years ago. For him who uses this size these are a bargain. A. I. ROOT, Medina, O.

SECTIONS and FOUNDATION.

WHOLESALE AND RETAIL.

All supplies cheap. Send for new price list free. Japanese buckwheat, 75 cts. per bushel.
22tfdb W. D. SOPER.
Box 1473. Jackson, Mich.

1890 Early Italian queens from bees bred for business. Each $1 00; six, $4 50. Ready May 1st. Order now, pay when queen arrives. Satisfaction.
2-24db W. H. LAWS,
Lavaca, Sebastian Co., Ark.

DO YOUR HANDS CHAP?

If so, send 12 cts. to JAS. H. FOOTER, 24 N. Liberty St., Cumberland, Md., for a stick of CHAPENE. 2d

GOING WEST. I will sell 100 colonies Italians in chaff hives, rigged for comb honey; best in the county. A shop, saws and power, dwelling of 8 rooms, in a town of 1000, in Northwestern Missouri. Will trade for western property. J. C. STEWART.
Hopkins, Nodaway Co., Mo.

FOR SALE.—Fifty colonies of Italian bees in the Langstroth, American, and Simplicity hives, with all the necessary arrangements for working the pound sections. Also 15 empty hives, with honey and wax extractors, etc. ROBT. NIZ,
2d Conemaugh, Cambria Co., Pa.

ALSIKE CLOVER.

The time for sowing alsike seed is nearing. It is usually sown in the latter part of February and during March. We have a large stock of very nice seed, which we offer as follows: 18 cts. per lb.; by mail, 9 cts. extra; $2.00 per peck; $3.90 per ½ bushel; $7.50 per bushel. In lots of 5 bushels or more, $7.00 per bushel. Bags are included in every case.

A. I. ROOT, Medina, O.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16 tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

For Sale.—40 colonies of Italian and hybrid bees in Simp. hives, mostly on wired frames. All in good condition, with plenty of stores. No foul brood ever in our county. GUSTAVE GROSS,
2tfdb Greenville, Bond Co. Ills.

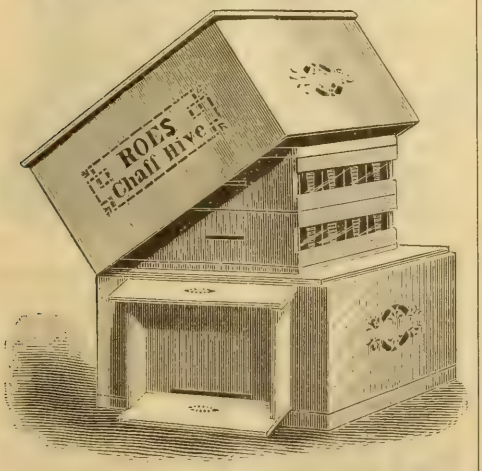
GET ACQUAINTED
WITH THE
BEE-KEEPERS' REVIEW.

The December issue has 24 pages, a cut showing "The Home of the REVIEW," also an accompanying article descriptive of "The REVIEW, its Home, its Editor and his Family." This number shows more clearly, perhaps, the plan upon which the REVIEW is conducted, than does any single number that has preceded it. In its advertising columns will be found the description of a plan whereby all who wish may secure the back numbers at a trifling cost. The special topic of this issue is, "What Will Best Combine With Bee-Keeping? and What Shall Bee-Keepers do Winters?" This number will be gladly sent free to all who apply, and with it will be sent two other numbers. 2tfdb

W. Z. HUTCHINSON, Flint, Mich.

WANTED.—To contract with bee-keepers using 5000 and over sections—to supply them at live prices. C. A. GRAVES, Birmingham, O.
24-27

SPECIAL OFFER.



This Hive Made up and Painted for Only One Dollar and Ninety Cents.

In order to more widely introduce my chaff hive, I offer a limited number of these as samples, if ordered now before the busy season comes on, for **$1.90** each. These are made from good material, nailed up and painted; have a tin roof, ten Simplicity brood-frames, and two T-tin crates.

I reserve the right to withdraw this offer at any time without further notice. This advertisement will not appear again. Send for my price list.

J. A. ROE,
Union City, Randolph Co., Ind.

☞In responding to this advertisement mention GLEANINGS.

IF YOU LOVE A GARDEN,

my little catalogue of seeds and strawberries may interest you. A postal, with your address and the word GLEANINGS on it, will obtain it, and also a sample packet of **SEEDS FREE.** I buy my seeds in bulk of Peter Henderson & Co., W. Atlee Burpee & Co., J. C. Vaughn, of Chicago, and tomato seed of the Livingstons. The seeds are put up in fair-sized, plain papers, and mailed at the moderate price of 2½ cents per packet. I select varieties that, by actual trial in my own market garden, prove suited to the hot dry climate of the Western prairies.

Henderson's Early Puritan Potato, already at the head as a white market sort. Price, sacked, on board cars at Crete, for large selected tubers, $1.50 per bushel. Not sorted, $1.00. Kaffir corn is of great value for hay and grain; $3.00 per bushel. Flour corn is also of value for table use, bolted meal, and fodder; price $2.40. Nebraska is a great corn country, but Kansas (crops grow better in Prohibition States) took the First Premium of $500 at the St. Joe Exposition. Hogue's Yellow Dent, however, took the second premium of $250. I have it direct from Mr. Hogue; price $1.00 per bushel. Giant Golden-Heart Celery, Henderson's Bush Lima (5 beans, 2½ cts.); Osage and Emerald Gem Muskmelons, and other excellent novelties. Bubach, No. 5; Jessie, Warfield, Haverland, and Gandy Strawberries, 25 cts. per doz. by mail.

M. S. BENEDICT,
CRETE, NEBRASKA.

ODD BUT TRUE.

Send me the names of 10 regular subscribers to the American Agriculturist, or Ladies' Home Journal, and I will give you next season your choice of the following: 1 untested Italian queen, 13 Laced Wyandotte eggs, 13 B. Leghorn eggs, or 10 S. S. Hamburg eggs. All I want is the names of 10 persons who take either of the papers. Write for catalogue of nearly 2000 papers at reduced rates.

C. M. GOODSPEED, Thorn Hill, N. Y.

☞In responding to this advertisement mention GLEANINGS.

Eaton's Improved SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON, Bluffton, Ohio.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." *(Mention Gleanings.)* 1tfdb

TILLINGHAST'S NEW

FLORAL ALBUM

Is not a seed catalogue but a magnificent volume containing 270 Elegantly Colored Plates, making the most Beautiful and Extensive Collection of Floral Lithographs ever published. The first copy cost over $2000.00. I will mail one copy for introduction on receipt of 50 cents.

ISAAC F. TILLINGHAST, La Plume, Pa.

☞In responding to this advertisement mention GLEANINGS.

LOOK HERE!

Bee-Keepers and Fruit-Growers, before you order your supplies for 1890, send for my catalogue and price list of **Bee-Keepers' Supplies** and **Strawberry Plants.** Twenty-five approved varieties grown for this season's trade. Prices reasonable. **Bees** and **Queens** for sale; $1.00 queens a specialty. Address **F. W. LAMM,**
24-23db (Box 106.) **Somerville, Butler Co., Ohio.**

☞In responding to this advertisement mention GLEANINGS.

FOR SALE!

One of the best located apiaries in Iowa, **150 Colonies,** in Langstroth hives. Handsome two-story frame residence. Twenty acres land. All necessary out-buildings. Also fine flock White Wyandottes. Two cows, nice span driving horses. Never a failure of honey. White clover, basswood, golden-rod, buckwheat, etc. House nearly new, nicely decorated paper, a very pleasant home. Price **$2500.** **C. A. SAYRE,**
23tfdb **Sargent, Floyd Co., Iowa.**

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the **best** Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3.50 per 1000.

☞ Parties wanting more, should write for special prices. No. 2 sections, $2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

☞In responding to this advertisement mention GLEANINGS.

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS.*

Southern Bee-Keepers, Send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.

SEEDS GARDEN, FLOWER & FIELD.

POTATOES, FRUIT TREES, PLANTS and VINES, *all the best kinds.* THE NEW CURRANT "Crandall," *a fruit specialty.* Our **Free Catalogue** is a **Novelty** all should have, as it gives **Accurate Descriptions and Fair Prices,** instead of *humbust* and *exaggeration*—too common. Send your address on a postal for it *at once.* **FRANK FORD & SON, Ravenna, Ohio.**

☞In responding to this advertisement mention GLEANINGS.

For Perfect Draft, Simplicity, and Durability,

BINGHAM PATENT SMOKERS, AND

BINGHAM & HETHERINGTON UNCAPPING - KNIVES

ARE WITHOUT QUESTION

THE BEST ON EARTH.

Send for descriptive circular and testimonials.

1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.

☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES,** write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.

☞In responding to this advertisement mention GLEANINGS.

BEES

SEND for a free sample copy of the BEE JOURNAL — 16-page Weekly at $1 a year—the oldest, largest and cheapest Weekly bee-paper. Address
16tfdb **BEE JOURNAL, Chicago, Ill.**

Bees & Poultry

Bees Poultry
Bees Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at $1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

SAVE FREIGHT.

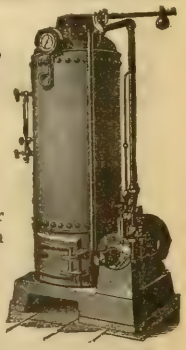
BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete stock of Apiarian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db

R. B. LEAHY & CO., Higginsville, Mo.

☞In responding to this advertisement mention GLEANINGS.

Engines & Boilers.



Complete Outfit, or Engine Alone.

The Best and Most Substantial Engine Made.

Fully guaranteed. Send for circular and price list. Mention this paper.

MEDINA ENGINE CO.,
20tfdb **Medina, Ohio.**

FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

SEND $1.25 TO THOMAS GEDYE, Kangley, Ill., for a sample of his *All-Metal Separator,* or $11.50, per 1000, and be convinced that they are the cheapest and best out. At present I have them for combined crates and T supers only. Supply dealers, please send for prices on large quantities, cut or uncut. 1tfdb

☞In responding to this advertisement mention GLEANINGS.

SEEDS

Don't buy your Seeds or Plants till you see my FREE 1890 Catalogue. I offer something Wonderful. Send for it.
1-8db **F. B. MILLS, Thorn Hill, N. Y.**

APIARY FOR SALE.

My apiary, consisting of 15 hives of Italian bees, 50 to 100 latest improved section cases, and numerous other fixtures. Send stamp for particulars.
1.2d S. A. FISHER, 15 Congress St., Boston, Mass.

SECTIONS, $3 PER 1000,

Foundation, Alsike clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our FREE PRICE LIST. **M. H. HUNT, Bell Branch, Mich.**

Please mention GLEANINGS. 1tfdb

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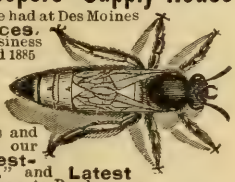
BEE-KEEPERS

Coming to Washington, D. C., will find pleasant rooms and board (by day or week) at special rates. Satisfaction guaranteed. Central location.
1301 K. St., N. W. 3tfdb F. DANZENBAKER.
☞In responding to this advertisement mention GLEANINGS.

1890 Early Italian queens from bees bred for business. Each $1.00; six, $4 50. Ready May 1st. Order now, pay when queen arrives. Satisfaction.
2-24db **W. H. LAWS, Lavaca, Sebastian Co., Ark.**
☞In responding to this advertisement mention GLEANINGS.

Western Bee-Keepers' Supply House



Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "**The Western Bee-Keeper,**" and **Latest Catalogue** mailed **Free** to Bee-keepers.
JOSEPH NYSEWANDER, DES MOINES, IOWA.
☞In responding to this advertisement mention GLEANINGS.

For Sale.—For cash, cheap, or trade for a good piece of land, from 50 to 200 colonies of Italian bees in the Quinby hive, and a few in Root's Simplicity. Too much work, with other business.
2tfdb G. HARSEIM, Secor, Woodford Co., Ills.
☞In responding to this advertisement mention GLEANINGS.

FOR THE SEASON OF 1890.

Headquarters in the South.

TWELFTH ANNUAL CATALOGUE NOW READY.

A steam-factory exclusively for the manufacture of Bee-keepers' Supplies.

ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

with pure Italian queen, containing 3 pounds of bees when secured, in April and May, $4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Twelfth Annual Catalogue.

P. L. VIALLON,
Bayou Goula, Iberville Parish, La.
☞In responding to this advertisement mention GLEANINGS.

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. THOS. G. NEWMAN & SON, 923 & 925 West Madison Street, - CHICAGO, ILLS.
☞In responding to this advertisement mention GLEANINGS.

NOW WE HAVE IT!

Bees made to hive themselves when they swarm. The simplest and most useful implement used in the apiary. Just the thing bee-keepers have demanded and felt the want of for years. Full particulars. Address

The American Apiculturist,
WENHAM, MASS.
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FOR SALE!

One of the best located apiaries in Iowa, **150 Colonies,** in Langstroth hives. Handsome two-story frame residence. Twenty acres land. All necessary out-buildings. Also fine flock White Wyandottes. Two cows, nice span driving horses. Never a failure of honey. White clover, basswood, golden-rod, buckwheat, etc. House nearly new, nicely decorated paper, a very pleasant home. Price **$2500.** **C. A. SAYRE,**
23tfdb **Sargent, Floyd Co., Iowa.**
☞In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

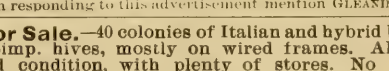
BASSWOOD V-GROOVE SECTIONS, $2.75 to $3.75 PER M. SHIPPING-CASES VERY LOW.
SEND FOR PRICES.

GOODELL & WOODWORTH MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**
☞In responding to this advertisement mention GLEANINGS.

J. FORNCROOK & CO.,

MANUFACTURERS OF THE

"BOSS" ONE-PIECE SECTIONS,



Will furnish you the coming season, ONE-PIECE SECTIONS, sandpapered on both sides, as cheap as the cheapest, and better than the best.
☞ Write for prices.
Watertown, Wis., Jan. 1, 1890. 3 5d
☞In responding to this advertisement mention GLEANINGS.

For Sale.—40 colonies of Italian and hybrid bees in Simp. hives, mostly on wired frames. All in good condition, with plenty of stores. No foul brood ever in our county. GUSTAVE GROSS,
2tfdb Greenville, Bond Co. Ills.

Eaton's Improved SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON, Bluffton, Ohio.
☞In responding to this advertisement mention GLEANINGS.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ILLUSTRATED.

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, - - Medina, O.

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—We must report a dull comb-honey market, and scarcely able to get more than 11@12 for fancy honey; but the extracted market is now improving some; we get 5¾ for buckwheat, and 7 for basswood, and may get ½ cent more before the month is out. We have made sale of all ours we had to sell, and we are sorry that we did not hold; but we could not tell how the market would be, on account of the weather. *Beeswax*, 22@25.
Jan. 22. E. J. WALKER,
32 & 34 So. Water St., Philadelphia.

NEW YORK.—*Honey.*—Since the beginning of December there has been very little demand for comb honey. However, we have managed to work off the largest part of our consignments, and our stock on hand is small now. If the weather remains cold we shall be able to dispose of the remainder at reasonable figures. There is a good demand for cheap grades of extracted honey and no stock of it.
Jan. 22. F. G. STROHMEYER & CO.,
122 Water St., New York.

ST. LOUIS.—*Honey.*—Cold weather has improved the tone of the market; but there is no appreciable change in prices. We quote: Comb, white clover, 14@16; inferior, 12½@13. Extracted and strained, light color, 5½@6; dark, 5. *Beeswax*, in demand at 23. D. G. TUTT GROCER CO.,
Jan. 22. St. Louis, Mo.

KANSAS CITY.—*Honey.*—Demand light and prices lower. 1-lb. sections, 12 to box, very fancy, 13. Good 1-lb. comb, 12@12½. Dark, 1-lb. comb, 8@10; 2-lb. white, 11@12; dark, 2-lb., 8@10. Extracted, white, 6@7; dark, 5@6. HAMBLIN & BEARSS,
Jan. 21. Kansas City, Mo.

PHILADELPHIA.—*Honey.*—Honey does not move with any degree of satisfaction in this market. Selling generally at 12@13 for No. 1.
Beeswax, yellow is in strong demand, and wanted in any quantity at 24c for prime bright yellow.
Jan. 22. CHAS. E. SHOEMAKER,
Philadelphia, Pa.

ALBANY.—*Honey.*—The demand for both comb and extracted honey has been quite brisk during the past week; but prices have remained unchanged. Quotations same as in last issue.
Jan. 21. C. MCCULLOCH & CO.,
339 Broadway, Albany, N. Y.

SAN FRANCISCO.—*Honey.*—Extracted honey is quiet, and selling at 6@7½, as to quality. Comb honey firm in 1-lb. sections, 12@13. *Beeswax*, quiet, 18@20. SCHACHT, LEMCKE & STEINER,
Jan. 13. 16 & 18 Drum St., San Francisco, Cal.

KANSAS CITY.—*Honey.*—The demand for honey is still light. We quote: White, 1-lb. comb, 12½@13; 2-lb., 11@12; amber, 1-lb., 11@12; 2-lb., 10@11. Extracted, white, 7@7½; amber, 5@6.
Beeswax, 22. CLEMONS, CLOON & CO.,
Jan. 22. Kansas City, Mo.

BOSTON.—*Honey.*—Sections, 1-lb., 16; 2-lbs., 15. Extracted, 7@9. *Beeswax*, 23. Trade dull.
Jan. 23. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

DETROIT.—*Honey.*—Comb honey continues to be quoted at 12@14c, with slow sales. Extracted, 7@8c. *Beeswax*, 24. M. H. HUNT,
Jan. 22. Bell Branch, Mich.

Get honey direct from the producer. Send for reduced prices of filled sections, pails, cans, etc.
OLIVER FOSTER, Mt. Vernon, Ia.

FOR SALE.—2000 lbs. of choice white-clover honey, well ripened, in 60-lb. cans, at $4.75 per can, boxed, f. o. b. No. 1 Spanish-needle honey, $4 50 per can of 60 lbs. 3-4d JNO. NEBEL & SON, High Hill, Mo.

Light Brahmas and Laced Wyandottes.

Standard, high-scoring males, $1.50 and upward. Eggs from show birds $1.50 per clutch, after the 7th of April. SIGEL F. GROSS, Atwood Ill. 3-4d

SMALL - FRUIT PLANTS.

All of the leading varieties at one-half the usual price. Send postal card for prices and description of my new black raspberry. **EZRA G. SMITH.**
Manchester, Ont. Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls, and Color.	Width, In'S.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1.17	65, 65, 64, 63, 63, 63, 62, 54, 40, 33
1 green	10	100	83	1.46	
25 green	12	100	100	1 75	44, green; price 77 cts.
1 green	14	12	14	25	
2 green	16	100	133	2 33	
1 black	17	100	142	2.47	
1 black	18	100	150	2.62	
5 green	18	100	150	2 62	
1 black	20	100	167	2.92	150 sq. ft., green; price $2.62
1 black	22	71	128	2.24	110 sq. ft., black; price $1 92
9 green	24	100	200	3.50	140, 160, 90, 40, 30, 20, 8, green.
1 black	24	100	200	3.50	
64 green	26	100	217	3 50	This is below reg. pr. of 1¾ c.
18 green	28	100	233	4.08	224, 224, 117, green; 233, black.
6 green	30	100	250	4.37	
3 black	30	100	250	4 37	
14 green	32	100	267	4.67	133, 133, green; price $2.33
1 black	32	100	267	4.67	253, black; price $4 43
1 green	34	100	283	4·91	255, black; price $4.46
14 green	36	100	300	5.25	270, green; price $4.72
1 black	36	100	300	5.25	150, black; price $2.62
8 black	38	100	317	5.54	269, black; price $4.70
3 green	38	100	317	5 54	258, black; price $4 50
3 black	40	100	333	5.83	317, black; price $5.54
1 green	40	100	333	5 83	
8 black	42	100	350	6 12	350, green; price $6.12
1 green	44	100	367	6 42	

A. I. ROOT, Medina, Ohio.

CONVENTION NOTICES.

The Northeastern Michigan Bee-keepers' Association will hold its eighth annual meeting on Wednesday, Feb. 5, 1890, in the Council Rooms, in the Fire-Engine House, at Lapeer, Mich. First session begins at 10:30. Low rates at hotel.
W. Z. HUTCHINSON, Sec'y.

The sixth annual meeting of the Wisconsin State Bee-keepers' Association will be held in the capitol building, at Madison, Wisconsin, Wednesday, Feb. 5, 1890. An interesting programme has been provided, and prominent bee-keepers will be present from this and other States.
DR. J. H. VANCE, Sec., Madison, Wis. C. A. HATCH, Pres., Ithaca, Wis.

The 21st annual convention of the New York State Bee-keepers' Association will be held at the Court-house, Rochester, N. Y., Feb. 5, 6, 7, 1890. The following is the programme:

First day. New Methods of Queen-rearing, by G. M. Doolittle. Miscellaneous topics.

Evening session. Best Method of Working to Secure Reduced Rates on Honey—discussion.

Has it Paid Honey-producers to Buy Italian and other Imported Queens? by Ira Barber.

The New Races of Bees, by G. H. Knickerbocker.

Second day, morning. How to Run several Out-apiaries for Comb Honey, in Connection with the Home Apiary, for the most Profit, by A. E. Manum.

Betsinger's Long-tried System of Non-swarming—given to the public for the first time, by N. N. Betsinger.

Discussion of special questions.

Afternoon session. President's address.

The Fraternity, the Honey-producer, Queen-raiser, Supply-dealer, and Editors; their Obligations one to Another, by Ernest R. Root.

Discussion—Is it Advisable to Introduce Laying Queens to Parent Colony, after having Cast a Swarm, or been Divided Artificially?

Discussion—Marketing Honey.

Discussion—The reported short Crop of Honey, and accompanying Prices for 1889—their Cause and Effect.

Question-box.

Third day, morning. Reading miscellaneous communications. Shallow vs. Large Frames in the Production of Comb Honey, by J. H. Martin. Question-box.
G. H. KNICKERBOCKER, Sec'y.

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IS IT ADVISABLE TO SHUT BEES IN THE HIVES DURING WINTER?

A VALUABLE ARTICLE FROM THE PEN OF L. C. ROOT.

IN your issue of Jan. 1st I notice a question on p. 24, "Would it injure bees to keep them shut in the hives in the winter time?" etc. I feel *very certain* that the reply to this question will tend to lead the uninformed into trouble. My reply would be, Never allow the entrance to become closed in any way. From long-continued and close observation I conclude that this is not only correct, but that it is very essential that the hives be so arranged that the bees may be certain of their freedom. Other things being equal, I have found bees to winter best indoors when the hives were removed from the bottom-boards and set on two scantlings, or, what has proven better, leave them on it, when it contained a good-sized ventilator which was left open, so that dead bees, or bees leaving the cluster to die, would drop readily from the hive without a possibility of clogging the entrance or causing other ill effects.

While visiting my friend P. H. Elwood's wintering-rooms, where his bees were wintering so perfectly, my attention has been called to the almost universal way in which the bees were clustering below the frames in the opening in the bottom of the hive.

When Julius Huffman was wintering his bees so perfectly, they could be seen clustering on the outside of the hives. Mr. Ira Barber calls attention to the same fact with his bees. It is not enough that there be "plenty of space under the combs, that dead bees may fall down out of the way." Capt. Hetherington went to large expense in arranging his large bee-house, to make the floor of slats, with spaces between, so that, when bees left their cluster and the hives, they would fall below the floor, where they could not in any way attract or affect the bees remaining in the hives.

During the past twenty years I have visited and examined the winter repository of many hundreds of bee-keepers, as well as the apiaries of many who winter on their summer stands. These visits have been made, usually, during the spring months, for the purpose of purchasing bees, and I have observed closely to ascertain the conditions under which bees have wintered most successfully. I have found it most noticeable in numerous cases, that hives would be found well stocked with honey, and often brood, and crowded with dead bees which had evidently been heated and worried until all were dead, and all as a result of the entrance becoming closed. Sometimes this would have been obviated if the hole which is found in the front of some hives up from the bottom had not been closed. I think this a question of much importance, and one that should command some attention.

Stamford, Ct., Jan. 11. L. C. ROOT.

Many thanks, friend R., for your kindly caution. I fastened the bees in their hives one or two winters, when they were kept in a sawdust-packed house. The whole bottom of the hive was covered with wire cloth, and this was placed on a frame so as to place it two inches below the bottoms of the hives. The hives were placed on strips so as to permit air to pass through this whole large surface of wire cloth. The bees wintered nicely, and I didn't have any dead bees on the floor. This latter point was principally the purpose of the experiment. As a rule, I am, like yourself, opposed to fastening the bees in their hives. Your suggestion from Capt. Hetherington, of having the floor made of slats, so that the dead

bees may easily be swept through, is something I never thought of; but I think it would suit me exactly. Many thanks for the suggestion. Your experience has certainly very much more weight than any of the experiments I made years ago, when we practiced wintering indoors.

SUB-EARTH AND OTHER VENTILATORS NOT NEEDED.

CELLAR OR CAVE WINTERING.

On page 11 of GLEANINGS for the present year I see you wish to know more about the sub-earth ventilation to my bee-cellar, which friend Stephenson speaks of in his letter regarding his visit here. When this outside bee-cellar was built, no one could have made me believe but that any place in which bees were to be kept should have means provided for a direct draft of air through it at any time or all times when the weather was mild enough to admit of it, without running the temperature of the cellar down too low. For this reason I prepared for what I considered the best possible ventilation of my bee-cellar when I built it, the ventilation being done by putting in a sub-earth ventilator something over 100 feet long, the same being arranged with two large tile, the one above the other. The under tile was to act as a drain when there was any water to carry from the cellar, or as a ventilator as far as it was not filled with water, the upper one always carrying in pure warmed air from the outside. At the top, in the opposite end, was the ventilator to carry off the impure air, which had in it the means of being opened to the capacity of both the large tile, or of being adjusted to any amount required, from the whole amount to none at all. As the sub-earth ventilator was placed deep in the ground, I thought that it need not make the cellar too cold by leaving the upper one wholly or partially open at all times; but when I came to put it to actual practice, I found that, in all cool weather, when there was a wind I could not keep the temperature where I wanted, at all, so I began closing the upper ventilator entirely, except on all days when the mercury was above freezing. As this made an endless lot of work, I resolved to leave it closed entirely for one month, and see what would become of the matter. It was with some misgivings that I went into the cellar at the end of that time, but I found the bees in splendid condition; and, to make a long story short, I will say, that, little by little, I kept shutting up ventilators till I became fully satisfied that enough air came into this underground cellar through the masonry and dirt covering, for all the necessities of the bees. Now, I not only found that the bees wintered just as well as formerly, but a little better; and, what was of more value to me still, I now had no trouble in controlling the temperature. This brings me to another point, which I wish to speak of, and that is

EVENNESS OF TEMPERATURE.

I see by page 10 of GLEANINGS that you still hold to your old ideas, that a bee-cellar must necessarily be too warm in a mild winter like the present; so for your benefit, and for the benefit of many who write to me, I wish to say that this underground cellar of mine is just as perfect in this, the warmest winter I have ever known, as in the coldest which I have had experience with. The temperature has varied but one degree since about the middle of November, it then being 47° and now standing at 46°. During severe winters the temperature at this time of the year is not far from 45°, thus showing that a mild winter makes a difference of only one degree with the cellar. This evenness of temperature, and keeping it at about the desired point, is one of the great secrets of successful wintering in cellars, according to my opinion, and one of the reasons why I prefer a cellar entirely under ground away from any building, or that which may give it an unevenness of temperature. The outside temperature has been exceedingly warm for the past two months, twice going as high as 63° in the shade, and remaining thus for 12 or more hours; yet such warm weather does not change the temperature of the cellar in the least.

SHUTTING BEES IN THEIR HIVES.

On page 24, in reply to Mr. Richardson, you say, "If the bees were in the cellar, I think I should prefer to have them fastened in their hives." Now, I should like to have you give us your reasons for so thinking. I thought it was decided by nearly every practical bee-keeper, long ago, that bees should not be fastened in their hives while in the cellar; and really I can see no object in so doing. The reasons for not doing this, are, first, when an old bee gets ready to die it always leaves the hive, if the temperature in which the hive is kept will admit of its doing so. Now, in a cellar of the proper temperature, these old bees can always do as nature prompts, and so strive to carry this out that they start, some time before they expire, to get away from the hive; and, if confined to the hive, they keep returning to the cluster, running over the bees, buzzing away on the wire cloth, etc., so that, when large numbers expire at the same time, as they often do, toward spring, the whole colony is aroused, when a struggle for freedom ensues, which is often very damaging to the whole colony, if it does not result in their death. Again, when the cluster spreads out to take in new supplies of honey from the surrounding combs, as most colonies do several times through the time they are confined, they will often come out on the outside of the hive, walk about a little, and return. If on such occasions they find themselves prisoners, the same kind of stampede occurs as before, and much harm is the result. After experimenting for years in regard to how the hives should be placed in the cellar, I now raise them from the bottom-board from two to three inches all around, leaving this space entirely open, so the bees can pass out or in as they please. G. M. DOOLITTLE.

Borodino, N. Y., Jan. 16.

When the senior editor dictated the footnote in regard to the difficulty of maintaining an even temperature for cellar wintering, during open winters, he did not know of the even temperature that I had been having right along with the 40 colonies in my front bee-cellar. Although we have had weather as warm as 65 in the shade, and that, too, continuously for several days, it has never been above 47 nor below 44 in the cellar; but with very little attention I think I could have kept it within one degree. With upground repositories, it is no doubt true that it is difficult to keep the temperature even; but with a good cellar like mine, partioned off by a brick wall and a tight-

fitting door from the main cellar, and darkened by a porch over its windows, or with a repository like yours underground, there can be very little trouble. I have no sub-earth ventilator. It is a great satisfaction to look up under those hives without bottom-boards, and see the clusters of bees hanging down, part of them below the frames, in that quiet, dormant sort of repose, or Clarke's hibernation; and it is no less a satisfaction to think that I can maintain the temperature that keeps them in this condition. ERNEST.

Ernest replies as above in regard to the warm winter. Shutting bees in their hives in a cellar or bee-house is not always productive of bad results. See my answer to friend L. C. Root.

PRIZE HONEY.

HOW TO KEEP DIFFERENT SOURCES SEPARATE.

IN the preparation of extracted honey for competition at exhibitions, it will doubtless be considered pardonable to go to some extra trouble in preparation. Where the prize is given on honey from different sources, such as on clover, linden, and thistle, respectively, we must aim at keeping the honey gathered from these separate places at different times, separate from each other. I take a colony just booming with bees, and am careful that they have only nice light comb. It may be thought that the color of the honey will not be affected by being stored in dark comb; but it is highly probable it will, and therefore should be avoided. Now, if I want clover separate I extract all uncapped honey from the lower combs, and empty the upper ones. If it is a strong colony, and the honey-flow good, there will be unmixed honey from whatever source the flow may have come. Now, instead of extracting this honey I leave it in the hive to within a few days of the time I leave for the exhibition, and then extract it carefully and seal the honey in jars. The best of clear flint glass should be used to show to the best advantage as to color, and for the same reason it should not be put in too large vessels, as the color will not show to the best advantage. As to placing, try to place it in a position so the light will be thrown right through it. This, too, gives the judge a favorable impression. The advantage to be gained by leaving honey on the hive is, that you secure it in the ripest condition. This gives you a point in specific gravity. It will not be affected as to color; and as to flavor, no one will admit that honey for some time off the hive and out of the comb is better flavored than that just taken from the hive.

I have had a very fair measure of success in exhibiting, and I attribute it to the above. Of course, in a poor honey-flow the bees will gather from doubtful sources, and a really good article for exhibition need not be expected.

EXTRACTORS, REVERSIBLE AND NON-REVERSIBLE; IN FAVOR OF THE STANLEY.

I see on page 956 you wish to hear from those who have used extractors swinging four or more combs at once. As I know you are a man pleased to arrive at facts, even should they bear against your opinion, I shall give you my experience. I purchased a four-frame reversible (the Stanley). At the time, I was afraid it would be harder on the combs; yet I thought it easier to work, and more rapid. I have now used it two seasons and a part of a third, and I find the reversible machine is not as hard on combs as the non-reversible. I find a marked difference in favor of the former. I can do far more rapid work with the reversible, and can with less labor take the honey out cleaner.

I reverse just as the machine has almost stopped. Of course, it is harder to work, yet not very much harder, when one has acquired the knack of running it. I find the extractor bulky, and it will not go through an ordinary door. All things considered, I prefer the reversible extractor, but it requires more strength. R. F. HOLTERMANN.

Romney, Ont., Jan. 14, 1890.

Your plan is a good one, friend H.; and, if I am correct, well-ripened honey is not so liable to candy, after being extracted, as honey taken before it was fully capped over. Years ago I used to cut chunks of honey out of the combs when we wanted some for the table; and that taken out of the hives very late, say in October, would often stand on a a plate during very severe freezing weather, without a trace of candying. The honey that ran out of the comb would be clear and crystalline, even when so thick the plate could be turned over without spilling. Now, I do not mean to say this will always be the case, but I think that the perfect ripening of the honey has a good deal to do with the prevention of candying.—Many thanks for the fine compliment you pay us in your report of the Stanley extractor.

UNUSUAL WARM WEATHER.

CANDIED HONEY BETTER THAN THE LIQUID; BEE-KEEPING AND OTHER BUSINESS.

DECEMBER and January, up to this time, have been almost as pleasant as May. Peach-trees are in bloom, grass is growing, snakes are crawling, butterflies are seen, frogs are croaking; and yesterday, Sunday, 12th inst., my bees were carrying in pollen from two sources—one from alder, and I do not know what the other is from. Is this not almost enough to make us believe that the earth has gone southward several thousand miles?

I have 16 colonies of bees in nice condition. It was, however, a struggle between life and death with them all summer, in consequence of wet weather; but late in the fall they filled their hives full of honey from aster, a part of which we took out. This is all candied, and is almost as white as lard. Nice candied honey is the most delicious thing I ever put into my mouth. I know a Methodist preacher who always shouts, and praises God after eating honey; not, as he says, because it is honey, but because the good Lord was *so* good as to make the bee to gather the honey, which man can not do. When I eat candied honey I feel much like that preacher. Man makes the hive, and the Lord makes the honey in a liquid state so the bees can gather it, and then he completes the work by candying the honey. Many are asking for recipes to keep honey from candying; but I would rather have a recipe to make it candy.

I have been much interested in GLEANINGS and the *Bee-Keeper's Review* on the subject of "What can a man best follow in connection with bee culture?" Now, I am one of those little bee-keepers

who must follow something else; but I can not think of descending from the honorable position of bee-keeping to that of an Italian peddler, as recommended by Mr. Doolittle, in the *Review* of Dec. 10, page 201. He says: "Then let our bee-keepers start out with a stock of diaries, file, a whetstone, a small vise, and a small hammer, and call at every house, selling diaries, and sharpening shears and scissors, etc." Now, wouldn't a bear and a monkey be better? Perhaps brother Doolittle, while selling his queens by the hundred and his honey by the ton, has never thought of putting himself in our place. G. C. HUGHES.

Pipestem, W. Va., Jan. 14.

No, no, friend H., don't advise getting a bear and a monkey. They are not really useful. But a man who is expert with file, whetstone, vise, and hammer, can do good, everywhere he goes. I think he will do more good, however, and make more money, to have a little shop, and have folks come to *him*. Perhaps not many of our bee-keepers are in the habit of shouting much out loud; but I am not sure but that it would be a good thing if they were; but if we do not shout out loud, I do hope we praise God, not only in our hearts, but out loud, in some shape or other. A man who finds nothing in his daily life to thank God for is really to be pitied.

SOME HINTS TO THOSE WHO WRITE FOR PUBLIC PRINT.

SUGGESTIONS TO THOSE WHO WISH TO SEE THEIR COMMUNICATIONS IN PRINT.

Friend Root:—It is a pretty hard thing to write to a person when you think that perhaps what you have to say will pass through the hands of several culling clerks or sub-editors, and may never reach the person addressed. But let that be as it may, you have the advantage, and have so much to say that comes home to our own experience that we feel like shaking you by the hand, and having a good laugh, though I admit I was feeling a little bad to think you would not publish my honey report this season, when it began to come up among the best, about 100 lbs. to the hive, and doubled my stock. I also sent you a clipping taken from our county paper, giving an account of a suit tried in the State of New York, for bee-pasturage, in two courts, both times going against the bee-keeper. I was quite interested, as I had been threatened. You passed it over in silence. Again, some time ago you mentioned in GLEANINGS that you sent a present (I forget what) to every one that was on your books for GLEANINGS, Jan. 1, 1889. I haven't seen a wrapping. Pardon me, but I began to feel like the poor shoemaker when he had run his credit out with the merchant. He reported that the merchant was going to break up, as he was going to quit him. But, friend Root, you made it all right when you gave us such a good laugh about that hateful little dog. I assure you we had a good laugh for several days when we thought of it; and about that old woman bothering you when you were in such a hurry to get home to take your nap. I hope this may reach you in person, for your sympathies are so large, and experience so great with humanity, that I like to talk to you. You see, this is to you personally. If it conveys a thought to appropriate to your store of knowledge, all right. S. D.

Thanks for your kind words, friend D. But you are a little bit uncharitable toward us here. It is true, your letter had to pass through the hands of several clerks; but every letter that comes here reaches A. I. Root within two or three hours after it comes from the postoffice. When letters are very long, and may contain matter suitable for print, they are turned over to Ernest, and he usually decides what shall be used for the journal. The letter in question was passed over to the printers by Ernest; but your old friend A. I. Root afterward threw it out, and I will take space to tell you why, because it may help some of the others who send us matter for publication.

In the first place, it was pretty long, and a good deal of it was unimportant. It starts out with:

As the season for honey-gathering is about over, I herewith transmit my report.

Now, the above conveys no valuable information at all, and your report would be just as good without it. A great part of the rest is a good deal like the above, and which, if used for copy, would have to be marked out. This is laborious, and requires one of our best and most valuable men. The report in regard to your large yield is not clear. To illustrate, we give it just as you wrote it, as follows:

So I started in to the honey season with 13 stocks, which filled 1000 1 lb sec & considerable part filled, and doubled these stocks. But as these sections the first part of the season were all over filled I believe 100 lb in the aggregate, which would make 1100 lbs from 13 hives spring count, which I think is not so bad.

Now, I can not understand, from the above, just what you meant to tell us; and inasmuch as we can not afford space for any thing that is not clear and plain, I give instructions to have every thing rejected that is not so written. If the intelligence is evidently valuable, of course we take more time, and oftentimes write back, or submit a proof to the writer, to get it just as he intended it should be. Well, in view of the above it would help us greatly if our friends would separate the different points of their communications by paragraphs, so that we can clip out with the scissors the ones we prefer to use, or, better still, put them on separate slips of paper. But by all means, make your meaning clear and plain, so a child can understand it, and leave out all unimportant words and phrases. Tell one fact first; then if you have another, make a paragraph, or, better still, skip a line and give us another. In fact, you may send us as many as you please, if they are thus separated. You may think this is asking a great deal of you; but, dear friends, stationery is very cheap nowadays. We would gladly furnish it to you free of charge, if that would help the matter, and we are always ready to pay for matter that is really valuable. When I say this, however, please remember that we

constantly have *great quantities* of matter that is rejected at once; then we have quite a good deal that is pretty fair, but only a *very little* comparatively that we call first class. Now, the first-class writers are never those who write *solely* with the view of getting pay for their writings. In fact, I rather think they do not think of pay at all. They write because they have something valuable to tell, and because they love to help the great reading public.

Finally, dear friends, the one who complains because we don't use his communications is seldom a first-class writer—at least, I have always found such to be the case. Now, friend D., it seems a little hard that I should make such a reply to so kind a letter as yours; but I have written it for a great many others as well as for yourself. I think that, with a little painstaking, you may become an excellent writer. In fact, the kindly spirit of your letter above shows it.

We have looked for the clipping from your county paper, but we do not find that it ever reached us. The *present* you allude to was probably the Ignotum tomato seed; but as our friends may not all have gardens, we announced to them that the seed would be sent only to those who asked for it. As your letter was evidently not intended for print, we use only your initials.

PINE-TREE HONEY.

MORE ABOUT IT.

We clip the following from the *Daily Register*, Danville, Va.:

During the latter part of December, people in the neighborhood of New Design, and between that place and this city, noticed that the green pine tags on the trees were covered with a sticky substance, which, when examined, proved to be as sweet as honey. It was crystal like water, and, when it dried, it had a whitish or ashy color, and was easily pulverized. It caused the foliage of the pine-trees to sparkle in the sun's rays as though it had been varnished.

A gentle rain on the 30th of December washed this curious substance away, but in a few days it returned in liquid form, and is now dropping from the pine-trees like dew.

Yesterday Mr. W. D. Tucker, who lives near New Design, caught a two-ounce vial full of this queer honey, which he brought to this city for chemical examination.

The liquid is about the thickness of mountain corn whisky, and has the same dull crystal color of that article, and it has the taste of wild honey, though a trifle more of an insipid sweetness, with no flavor of turpentine and resin about it, as might be expected from any product of the pine-tree.

It leaves the pine tags in a gummy, sticky condition, and the bees seem to be reaping a rich harvest from it. So far it has appeared on none but pine-trees, and it is a puzzle to everybody who has seen it. What is it? Where did it come from, and has this remarkable spell of weather any thing to do with it? are some of the unanswered questions which have been asked.

Our readers will doubtless recognize that the Danville *Register* is not of the GLEANINGS family; for if it were, it would never think of using "mountain corn whisky" for a comparison. What kind of company does the *Register* man associate with, any way? Nevertheless, we are very glad to get the facts in regard to the beautiful pine-tree honey. Yes, beautiful in taste and looks, even if it should prove true that it is the work of aphides.

HOW STATE SOCIETIES MAY AFFILIATE WITH THE

INTERNATIONAL AMERICAN BEE-ASSOCIATION.

On the 3d page of the *American Bee Journal*, friend Newman advises all local State, Territorial, and Provincial associations to affiliate with the International Bee-association, and the Southwest Wisconsin have at once taken the hint and done so. As it is to the interest of both the local societies and the International to associate under the regulations voted at the meeting in Columbus in 1888, I should like to suggest to all presidents and secretaries of these associations that they investigate this matter and get their associations affiliated this season, so that they can unite in the steps to be taken for the World's Fair of 1892. Below are the paragraphs of the Constitution and By-laws of the International A. B. A. referring to this matter. I solicit correspondence from all interested in this question.

C. P. DADANT,
Hamilton, Ill., Jan. 18. *Sec'y I. A. B. A.*

Delegates from affiliated local Associations shall be admitted free, and have all the rights of annual members.

The Presidents of all the Local Associations, in affiliation with the International Association, shall be *ex-officio* Vice-Presidents of this Association.

Any State, District, Territory, or Province in North America may become affiliated to the "International American Bee-Association" upon the annual payment of five dollars, which shall be due on the first day of January in each year.

The Secretary of each local Affiliated Society shall, through its Secretary or President, on the first day of August in each year, report to the Secretary of the International American Bee-Association, the number of its members, stating the aggregate number of colonies of bees in their apiaries in the previous fall, the number in the spring, the increase since, and the approximate number of pounds of honey produced (stating comb and extracted separately), and any other desirable information concerning the probable honey-production of those not members of the Society, but within the territory of the affiliated local association.

If the annual Affiliation Fee be not promptly paid, and the Local Report withheld, the "International American Bee-Association" may at any time within one month of the dates mentioned, withdraw the privileges of affiliation, which comprise the following:

The President of each Affiliated Society is *ex-officio* a Vice-President of the International American Bee-Association.

It shall be entitled to receive from the International Bee-Association two Silver Medals, to be offered as Prizes for Honey, open for competition to all its members, one for the best in the comb, and the other for the best out of the comb.

The members of all the Affiliated Societies shall be entitled to the facilities which may be provided from time to time by the Honey Company, for the sale of Honey and Beeswax, upon the terms stated in the By-Laws of the Company.

Each Affiliated Society shall be entitled to the services of a Judge to award premiums at its Bee and Honey Show, upon the payment of his actual railroad and hotel expenses.

Each Affiliated Society shall be entitled to elect one Delegate to each 25 of its members, or fraction thereof, who may represent it at the Annual Convention of the International American Bee-Association—all expenses of such Delegates to be borne by themselves or the local society, or both conjointly, as they may provide. Such Delegates shall be entitled to vote, hold office, and take part in all the deliberations of the International Bee-Association.

THE DIBBERN ESCAPE.

A CORRECTION, AND FURTHER SUGGESTIONS.

IN your issue of January 1 you head my article as an "improvement on Reese's" bee-escape, and, further on, follow it up with "Reese's horizontal escape." Now, I am not willing to admit that mine is simply an improvement. I claim the horizontal double-cone escape as an entirely original invention of my own. Except the board, it is entirely unlike the old escape of Mr. R. Mr. Reese will not claim that he invented the double-cone horizontal escape, and would, perhaps, not have thought of his latest had I not sent him a diagram of mine. Now, what is his escape, after all, but a different form of my horizontal double-cone escape? In my private letter to him I stated, "I had failed to place the escape inside the board;" that is, up to that time I had not been able to do so satisfactorily to myself. Since then I have perfected my escape, and claim that my present escape is as far ahead of his latest as my first was ahead of his old one. I will now point out a few objections I have to his supposed improvements on my escape.

1. It is complicated, and hard to make.

2. It cuts up the board badly; can not be removed from the board, and can not be used for a honey-protector without boring additional holes.

3. The board would have to be taken off, and tin nailed on both sides, every time it is exchanged from an escape to an inner cover, and *vice versa*.

4. I have found that an escape with but a single outlet, for only one bee to pass at a time, is not sufficient when many bees are in the supers. When the escape-board is placed right under such supers, the bees become panic-stricken, something like people at a theater when the cry of fire is raised, and the bees would be liable to become packed and wedged in the escape. It was for this reason that I used two of my single-outlet escapes.

I have no quarrel to pick with my friend Reese, from whom I have received some valuable suggestions, and to whom bee-keepers are indebted for the first practicable escape. Whenever he gets up a better escape, or a real improvement on mine, I will freely "acknowledge the corn."

During the recent summer weather I made numerous experiments with my escape. One fine summer day I exposed a superful of partly filled sections, and allowed the bees to rob it for a time. When they had fairly got to swarming on it, I quickly put a board on it, with escapes up. It was very interesting to see the bees pouring out of the escapes, and the frantic efforts of others to get in. I tried all the different forms of my escape in this way, so I could form some kind of idea as to which was best. Again, I placed supers containing sections, that had been extracted, on strong hives; and when the bees had got fairly at work I placed different patterns of the escape under them; and invariably the bees were all out of the supers in a couple of hours. All seemed to work well; but I noticed that the bees were more inclined to crowd and become wedged in the single-outlet escapes. Another point I discovered was, that, where the escape occupies the bee-space, some care is necessary in putting on the boards so as not to crush any bees directly under the escapes. To overcome these objections I set to work to perfect my escape, and now have it about all that can be desired.

When I wish to do a thing, and there are no tools suitable for doing it, I go to work and invent them. Now, I wanted to cut a round hole, four inches in diameter, out of the center of my escape-boards. I found my Clark bit would expand to only 3 inches. I went at it, and made an extra-fine cutter for it, and I can now cut out "cart-wheels" up to five inches in diameter. I cut out only four-inch holes, as that is as large as I need, and my escape-boards are only ¼ inch thick. Now, when I have my four-inch piece cut out, I bore an inch hole through the center, and nail a piece of tin, half an inch larger, and with a hole in the center, to correspond to the one in the wooden piece on it. It can now be replaced in the hole again, and it is just what I want as a honey-protector, or, inside cover. I now take another piece of tin of the same size, and fasten an outlet escape, of star shape, on it, also a few pieces of tin near the edges, so as to hold the escapes exactly in the middle of the hole cut out of the board. The escapes are just ⅜ inch smaller all around than the holes, allowing enough room for bees to get out. I make the escapes so as to be shaped like a four-pointed star, as that very nearly fills the hole, and I find that, through four outlets, the bees can get out of the escapes faster than they can get in through the hole from the top. It will be seen that my escape now occupies the place cut out of the board, without any projections to get jammed or bees to get killed. More than this, it can be instantly taken out at the top, without removing the board at all, and the solid plug be put in, and the reverse. The board can also be reversed to match bee spaces in hive or supers, or it could be used without any bee-spaces at all. I have about settled the question, that one center four-point escape is enough, and the best; but should it be found that two such escapes are necessary, how easy it will be to clip out another hole and use two such escapes! Is there any objection to this cutting up the board? I think not; but I can see several decided advantages. In the first place, as I use these boards directly over the sections I can generally determine when a case is finished, by removing the plugs and looking in. How nice these holes will be in shipping bees, to tack a piece of wire cloth over! also to put a piece of carpet over, just before storing for winter, or to be used to feed through.

I am now entirely satisfed with my escape; and if any man has any thing better, let him "trot it out." I do not see that any thing better can be desired.

I do not think that bee-keepers in general realize the value of my invention. I trust, however, that none will allow the benefits I freely offer to "bee escaping" them the coming season.

Milan, Ill., Jan. 6. C. H. DIBBERN.

We styled yours an improvement on Reese's escape because it *was* an improvement; that is, we meant it was a much better device. The horizontal feature of your escape, it is true, is, so far as we know, entirely your own invention. And Mr. Reese does not, if we understand correctly, claim any honors on it. When we put the heading, "Reese's horizontal escape," we meant by that, Reese's modification of your invention, and styled it Reese's in distinction from your original design. We have looked over the horizontal escape, and have come to the conclusion that the construction of yours is better after all. It is simpler, and easier to make. And, friend D., we *all* thank you.

DOUBLE VS. SINGLE WALL HIVES.

THE ADVANTAGES OF THE FORMER, BOTH SUMMER AND WINTER.

In determining which is the better, a double or a single wall hive for practical results, we should consider not alone the winter problem. At the late International Convention, where the matter was fully discussed, it was not, nor can it be shown to be, that a properly constructed double-wall hive packed with suitable material will not winter bees as well as the single-wall hive in a good cellar. Though it was shown, I think, conclusively, that there is a small saving of stores by cellar wintering, I think it must also be conceded that it is, on the whole, the most economical system of wintering. Here, then, are two points conceded in favor of single-wall hives; but I propose to show that these are more than offset by the superior advantages of the double-wall hive in spring and summer.

The saving of stores by cellar wintering is not over four pounds to the colony; and the saving in the cost of hives is not more than the value of four pounds of honey per year. Now we come to spring brooding; and my experience is, that there is a net saving of not less than ten pounds of stores to the colony by the use of the double-wall hive up to the first of June, in this locality; and I believe the saving would be still greater at any point further north. If we calculate, then, from the first of November till the first of June, we have a saving of at least six pounds of stores in double-wall hives over the best possible showing in single-wall hives.

But we will not stop here. There is another advantage in double-wall hives that has not heretofore been recorded; and it is the chief consideration with me in deciding in favor of them. *We can raise one-third more brood and bees in a double than in a single wall hive by the first of June!* We have the facts and figures to prove this point, and they will be given if desired. I will here simply allude to the fact that bees in protected hives in spring are stronger, and are able to gather stores, and to breast strong cold winds, when the bees from single-wall hives, being comparatively weak, fall to the ground, or become chilled on the flowers, and die. The cause of this state of things is undoubtedly due to the greater labor required to keep the brood warm during the cool nights and days of April and May, in single-wall hives.

Thus it will be seen, that the two points above conceded to the credit of the single-wall hive become a small matter when we compare the grand results that can be achieved with the double-wall hive in spring brooding, preparatory to securing a crop of honey. But I shall fall short of doing this subject justice, by not saying something upon the proper construction of double-wall hives and their winter and spring management. I know that many have failed with such hives, and I think I know why. I have said, and I desire to emphasize the fact, that a chaff hive, with damp packing, and damp walls and combs, is a poor place for bees. Indeed, it is far inferior to a single-wall hive in outdoor wintering, if it is allowed to get into such a condition; and I know that the ordinary management of these hives leads to more or less dampness, which is either death to the bees or there is a partial or complete failure in results. Double-wall hives, then, must be kept dry, and the packing must be thoroughly dry to begin with. Again, the packing must be quite porous or it will require to be often changed. Thus, fine sawdust, clover and oat chaff, that mat down close, are objectionable. Forest leaves, planer shavings from dry wood, and the excelsior sawdust obtained in sawing sections, are preferred, and from 2½ to 3 inches of packing about the brood-chamber is enough.

DAMPNESS IN HIVES.

In preventing dampness I rely much upon proper ventilation, and practice two methods, both of which succeed well. The first is free bottom ventilation, and it seems best adapted to this locality. The second is upward ventilation in connection with a small entrance (2 inches by ⅜). This latter system seems better adapted to points further north, though I am not sure it is. With free bottom ventilation there is more and purer air furnished to the bees, and they appear to be able to keep the hive as warm as by the other plan, as the following will show.

About 50 miles due west of here are quite a number of apiaries of from ten to fifty colonies of pure black bees in box hives, where for more than 50 years they have held their own, and where, up to this time, the frame hive and the modern system of bee-keeping have been unknown or ignored. What impressed me most was the fact that all of these hives, without exception, were set on four small flat stones, from ¾ to 1 inch thick, and they were left so the year round. I inquired of one old and intelligent bee-keeper why he let so much air in at the bottom of his hives, and he replied that they could not winter their bees in any other way! that the combs and hives, without the large openings at the bottom, would become damp, and the bees would die; that, as long as the hives and combs were dry, the bees were never injured by the cold! I suppose I have seen this same fact stated in the bee-papers a hundred times, and yet it does not appear that the mass of bee-keepers are profiting by it.

BEST MODES OF VENTILATION.

It is now a well-known fact, that bees in winter, at intervals of three to five days, arouse from their torpid condition, and feed. During the intervals they take no food until the sense of hunger again arouses them. This is an interrupted hibernation. I have thought that they often go as long as a week without food; but when they do rouse up they raise the temperature and warm up their stores before they can feed; and in the operation they set in motion active currents of air. Now, I have observed that bees can not properly ventilate a hive except from the bottom; and the experiments of Mr. Corneil have shown that free bottom ventilation can not be had through a horizontal entrance of the usual size, without other openings in the bottom or other part of the hive. Bees then may, at their feeding-times, ventilate and dry out their hives in winter to some extent, where free bottom ventilation is provided for. The plan that I have tried, and which seems to answer every purpose, is to give a full entrance (⅜ x 12 inches), and in the bottom of the winter-case, at the rear end of the brood-chamber, make five one-inch auger-holes, which are to be covered with tinned wire cloth. Upward ventilation is prevented as far as possible by the use of an inside cover for the brood-chamber, made of wood. The hive stands near the ground, and a few leaves are placed loosely beneath to keep the bees from trying to get under the hive, when they can fly, where the auger-holes

are located. The hives are painted on the bottom, and the dampness of the ground does not affect the hive or bees.

With the above arrangement the packing gets only slightly damp, which is soon dried out by taking off the cover of the winter-case once in two or three weeks when the sun shines clear. If the packing gets quite damp over the brood-chamber (and it often gets so on the cool days of spring), I throw it all out to dry on the cover, which is inverted on the ground. The sun is also allowed to shine full upon the inside cover of the brood-chamber. The effect of this treatment on the bees in the spring is very remarkable, and especially upon the laying of the queen and the rapid extension of the brood. The covers are usually taken off about 10 A. M., and returned at 4 P. M. Where upward ventilation is given, the entrance is closed to 2 inches by ⅜, and no holes are made in the bottom of the hive. Over the brood-chamber is laid two thicknesses of cheap cotton cloth, and four or five inches of packing. I prefer the cloth to lay flat on the frames without any cross-sticks for passageways. With this arrangement, after a few weeks of cold weather the surface of the packing will become quite wet, while it is warm (50°) and dry beneath. I use mostly the excelsior sawdust on the brood-chamber, loose, as it can be handled almost as easily as a cushion, and is readily dried out, while a cushion is wet. When ready for the sections it may be taken out and stored in barrels, for future use; but the packing around the first story is left in place, as a rule, all the year.

A properly constructed double-wall hive is simply a winter-case for a single-wall hive. They should not be constructed all in one, as the packing, if it becomes damp, can not be removed to dry it out. My winter case is made of thin boards, $\frac{3}{32}$ thick by 20 inches long, nailed up and down to a frame at the top and bottom. The bottom and cover are also lined with the same thin stuff; and the whole, with the flat tin roof, weighs under 25 lbs. It is light, easy to handle, and very durable. After five years' use I have yet to lose a colony in them. In summer we take most of the packing away, when they become excellent summer hives.

In conclusion, allow me again to call the attension of bee-keepers to the matter of bottom ventilation for winter hives. DR. G. L. TINKER.

New Philadelphia, O., Jan. 16.

I think, doctor, I agree with you on almost every point you make. At the recent convention in Lansing, Mich., quite a majority recommended, with a good deal of emphasis, having the hives packed with chaff, or some equivalent, after they were set out in the spring, even where they were wintered indoors. A good many were quite decided on the point, a little to my surprise. Those who advocated single-walled hives, even after the bees were set outside in the spring, were very few; and I am inclined to think the objection to chaff hives for summer as well as winter has been mostly owing to the fact that the outside siding was not made so as to allow the packing to dry out. In my travels I have seen great numbers of chaff hives with the outside covering made of whole wide boards. I would not think of making a hive in that way any more than I would make a corn-crib out of boards instead of slats. Ventilation at the bottom seems to be finding much favor, both in the wintering repository as well as outside. I do not like loose outside boxes, principally because they are too much machinery, and it requires too much tinkering. The point you make in italics, that you can get a third more brood in a double-walled hive than in a single one, by the first of June, it seems to me pretty nearly settles the matter. If we need chaff packing on, as late as the first of June, and then require it again as early as September, why in the world should we dispense with it at all?

MORRISON'S QUEEN-CAGE.

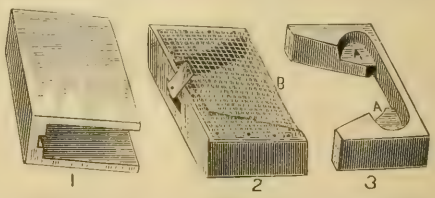
PERFORATED ZINC AND THE CANDY METHOD COMBINED.

I SEND by this mail a queen-cage which I have been using for two years past. I do not claim any originality for myself in this cage, but I have combined some ideas of others. I believe it is the best combined mailing and introducing cage yet devised.

1. It insures safe carriage through the mails, by its strength.

2. It has been examined and approved, both by the postoffice authorities of this country and Canada.

3. No other cage combines so many advantages in introducing the queen. You will notice that, when the cage containing the queen is pushed down between two combs, the bees have an opportunity to become acquainted with her through the screen. A few hours afterward the tin piece can be quietly turned, and the bees now have access to



MORRISON'S MAILING AND INTRODUCING CAGE.

the interior of the cage through the queen-excluding zinc piece. The queen will never be killed until the zinc is turned. At the end of 24 hours, after the bees have entered the cage turn the zinc and plug the hole with a little hard candy. This will prevent an attempt of the queen to go out of the cage for a few minutes after closing the hive, when, if not friendly, a guard at the entrance will admonish her to stay in.

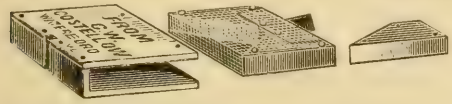
I also call your attention to the candy in the cage. That candy will be in as good order if kept in a dry room a year from this as now. It was made according to the formula I sent you some weeks since; the only materials in its composition being confectioner's sugar and honey, boiled as in making cream candy. With this cage and this candy I send queens to European countries without any more thought or care than to sections of our own country. In cold weather I wrap the cage, so as to close one end, with waxed paper.

S. W. MORRISON, M. D.

Oxford, Pa., Dec. 16, 1889.

Thanks, friend M. I have been studying on this matter of queen-cages for a couple of years back; and I had already, before yours came to hand, directed my fancy to-

ward the Benton, or a cage after the one you describe. On account of the splendid record of the former for mailing queens successfully long distances, I have rather favored it. You very modestly, and with consistency, too, disclaim any originality for the invention in your cage. Looking back in GLEANINGS for 1885, page 733, November, I find a very similar one described by C. W. Costellow, of Waterboro, Me., a cut of which I reproduce as it then appeared.



Even he does not claim it to be wholly original with him. Such a disposition on the part of both is indeed refreshing in these days when apicultural priority in invention is so eagerly—yes, greedily—sought after. The cage is cheap, and very easily constructed. On account of the liability of the block splitting in No. 3 of your cage, I believe I should prefer the Costellow plan. There is one point you do not mention; and that is, the facility with which queen-bees can be examined. Another point is, the rapidity with which such a cage can be gotten ready for the mails by slipping it into its wooden case. You have added a feature, which I believe you alone are using; and that is, the use of perforated zinc. While the idea seems to be a good one, I should regard it as a little extra labor, and perhaps unnecessary. We introduce queens right along by the candy plan in our apiary. By the "candy plan" I mean causing the bees to liberate the queen by gnawing through a plug of candy—the plug being of such a size that the queen will be liberated in from 36 to 48 hours. With the very small percentage of loss we have had, I should hardly consider it of enough moment to go to the trouble and expense of the perforated zinc. Now, if your cage would send queens by mail as *successfully* as the Benton, which I very much doubt, then I should consider it the very best cage ever invented; but in the Benton cage, when the occupants are subjected to an extreme of temperature, as in going over the mountains, they can seek an inner and warmer apartment; and, again, when they come into a very warm climate they can enter a more open and better ventilated apartment. In one sense of the word, the Benton is climatic. It is this feature, I think, which gives the Benton such universal success. I will shortly describe it in GLEANINGS. ERNEST.

Since receiving the first letter of description, friend Morrison writes in regard to the priority matter in reply to ours. Mentioning the Costellow cage, he says:

Dear Sir:—I had forgotten the illustration of Costellow's cage. I don't doubt that Costellow got his idea of the cage from my cage. Don't you remember I sent you a queen in this cage in 1888? I shipped over three hundred queens in it during 1888. The queen-excluder zinc was added to all cages used in 1889, and I think it an important addition. So far as I have learned, Boomhower made the cages first, and E. Flory, of California (I have lost his address), suggested to me the use of the perforated zinc early in the season of 1888.

Oxford, Pa., Dec. 23. S. W. MORRISON.

Yes, we remember receiving the cage in 1888, but Mr. Costellow sent his cage in *1885*.

SPREADING BROOD IN THE SPRING.

MRS. HARRISON TAKES BRO. DOOLITTLE TO TASK.

I HAVE long wanted to pick a crow with Bro. Doolittle. Although it is pretty old and tough, I think I can still pull out the feathers, though I may have to tug pretty hard at the tail and wings.

The old grudge is all about spreading brood. Somewhere about nine years ago, during the cold winters, I lost nearly all my bees, having the remnants of about sixteen colonies left. I had but one idea, and that was to build them up as soon as possible; and with that end in view I read up on the subject, and finally chose to follow in Bro. Doolittle's wake as closely as possible. I followed his directions to the letter, and my bees were soon all dead; and I've always firmly believed that, if I had not meddled with them, they would have come through all right. I do not doubt but that Bro. Doolittle succeeds in this way; but he knows better than his readers, when the conditions will justify spreading.

I saw something lately from his pen, with reference to spreading brood (but it is not at hand just now), in which he says a week may be gained in this way. Now, there is one thing which ought to be taken into consideration more than it is; and that is, difference in climate. Some years we do not appear to have any spring. It is cool until it is hot; we can wear winter clothes until we put on summer wear. Now, if brood is spread, and there comes a cold windy day, which may occur as late as May, it will damage a colony even if it does not prove fatal to it. Still, cool weather, even down to freezing, might not be so hurtful as these winds, which penetrate to the very marrow of our bones, and soon exhaust the life of a divided brood-nest.

I'll take back all I ever said about working with bees in the spring—better do it the fall before. If bees have plenty of stores, and are protected as much as is possible to do in the open air, against cold and piercing winds, it is safer, according to the light I now have, to let them manage their own domestic affairs until after fruit-bloom.

Peoria, Ill., Jan. 14. MRS. L. HARRISON.

Mrs. H., I wish that both you and Mr. Doolittle had been present at the recent Michigan Convention. The question came up, and was discussed pretty thoroughly; and, if I am correct, a vote was taken in regard to the matter; and while one or two advocated spreading, the heavy producers, together with a good many others, were pretty vehemently against it, unless delayed, as you say, until after fruit-bloom or considerably later. I am sure that I have killed fair stocks by spreading the brood; and I very greatly doubt whether we can help the bees very much by taking the matter into our own hands. In the latter part of May, or in June, putting empty comb in the center of a strong colony will very likely assist the bees in starting an unusual amount of brood. We should remember,

however, Mrs. H., that friend Doolittle is a very careful man. He does not trust much to hired help, but has his eye on every thing that is going on, and therefore *he* would succeed where the majority of people might not.

RAMBLE NO. 20.

RAISING HONEY; PEDDLING AT HOME, ETC.

AFTER a few days with our generous Scotch friends I began to feel so plethoric on fish and wild game that a further Ramble was absolutely necessary; and one beautiful morning we took passage on the steamer Horicon and made the entire trip of the lake, about 30 miles. The beauties of the lake must be seen to be appreciated, and the pen refuses to adequately describe the beautiful pictures that are constantly presented to the eye as we gracefully float over these historic waters. The Hawkeye was kept quite busy, and I have before me many souvenirs of the trip. From Baldwin, our landing-place, my trip continued by rail and stage, through Ticonderoga, and over battlefields of early days. The old fort is now crumbling, but well repays a visit by the tourist. Near by is the home of Joseph Cook, and we were contemplating the rearing of great men near where patriots fell, when we were dumped off the stage in the middle of the highway, and told to go straight ahead and we would find a boat to ferry us across Lake Champlain. I rambled out on a stone causeway, and saw a wheezing affair approaching, which appeared like some ancient settler's forlorn cabin adrift on the angry billows. It finally hauled itself in on a wire rope. The Hawkeye was leveled, and the captain dodged inside; and when I boarded his craft he wanted to know what I was up to with "that 'ere magnetical battery." While on the elegant Horicon we felt really aristocratic; and had we a mahogany cane and opera-glass, the Rambler might have been taken for a millionaire; but when we sat down on a coal-hod in the greasy engine-room of this crawfish affair, which had its head at the sides and a tail at each end, we felt as though we could shake hands with the next loose-jointed pauper we should chance to meet.

After landing, an invigorating walk of a mile found us at the residence of J. H. Larrabee. It was extremely easy to find him, for everybody seemed to know the genial John. We found him just as busy as a bee, operating his Barnes saw, getting out crates in which to ship his honey. Though not as bountiful as usual, his fine comb honey measured up into the thousands of pounds, and a ready sale at fair prices encourages him to look forward with bright plans for the future. His honey-house is quite small; but having an out-apiary recently established, he proposes to move the small house on sleighs some time during the winter, and build in its place a large structure 26x30, and two stories high. Our friend John, in common with nearly all bee-keepers in this portion of Vermont, uses the Bristol chaff hive, with ten L. frames. Our friends here do not believe in small brood-chambers; and we will guarantee that every hive in Bro. Larrabee's yard had 50 lbs. of honey with which to go through the winter. The crate, or clamp, for securing comb honey in this apiary struck us as a very convenient arrangement. Our Hawkeye gave a very good picture of it. The crate contains forty 1-lb. sections. The sections are supported by slats nailed permanently across the bottom. Wood separators are used, and these slide loosely in grooves cut in the ends of the crate. A follower sawed thin at one edge, with the thin edge up, and a wedge to press down, the sections are all held firmly in the crate; and by removing the wedge and follower, any section can be readily removed. A bee-space can be allowed above or below, but we think in this apiary they are used without it.

After showing us his many labor-saving implements, the genial John said he would teach the Rambler how to raise comb honey. The Rambler, who is an extractor man, was immediately all attention. We sat down to a little table, "And," said, Bro. L., "I prefer to secure the honey in these beautiful white four-piece Vermont poplar sections. Let the honey match the wood in whiteness. Then, sir, while a great many short-sighted bee-keepers are afraid there will be too many honey-raisers, I do really desire to make more; and I stand upon the broad platform of educating all classes, rich and poor, to raise comb honey. Now, what is more tempting than a pound of this pearly whiteness, with the aroma of an opening rose? You cut it into squares, and gently raise one of them on a fork; the jaw drops; the left eyelid quivers; the tongue advances, and, oh my! the sensation when honey and taste meet! Why, Mr. Rambler, I have educated my neighbors to such an extent that raising honey on a fork is obsolete. Some use a jack-knife, some a butcher-knife; one charming milliner uses a button-hook; another refined young beauty over on Cream Hill uses a toothpick; and as soon as I get Bro. Newman's honey almanac to operating, I

TEACHING RAMBLER HOW TO "RAISE" COMB HONEY.

expect to call upon other Vermont apiaries to supply the great industry springing up here for the raising of comb honey. And, Mr. Rambler, had I the amount of extracted honey that you have, I would see the commission men in Tophet before I'd send them a drop. Just educate your neighbors to raising it with a spoon."

RAMBLER "RAISING" HONEY ON A SPOON.

This phase of honey-raising by everybody with forks, spoons, etc., pleased the Rambler immensely. He started right off home on a dog-trot, got a five-pound pail of honey and a few teaspoons, and, entering his native village, proceeded to give everybody a taste. We halted Sam and Jim, Polly and Jerusha and the children, for a taste of our honey. As a result, the remnant of our honey was soon all raised on spoons and buckwheat cakes. Now, we are also going to set that honey almanac to operating, and we expect to raise a regular "fewroar" in the home market. This is a fact thoroughly believed in by the RAMBLER.

THICK TOP-BARS, AGAIN.

THE EVIDENCE POURING IN; THEY PREVENT BRACE-COMBS, AND THAT, TOO, WITHOUT A HONEY-BOARD.

THE *Bee-Keeper's Review* for Jan. 10 is out, and a good number it is too. The special topic is wide and thick top-bars, and the prevention of brace-combs. The testimony collected in this issue very materially substantiates the testimony that has been brought out in our own journal. The whole thing summed up in a single sentence stands about like this: *To prevent brace-combs and to dispense with the honey-board, use top-bars ⅞ inch thick, 1 inch wide, and spaced accurately 5/16 inch apart.* A top-bar ⅞ inch wide, and bee-spaced apart, may largely if not entirely prevent brace-combs; but the extra ⅛ inch added to the width, so far as I am able to gather, makes a sure thing of it. The testimony has been so convincing that Bro. Hutchinson says he is quite converted to thick bars. He says that, when Dr. Miller first intimated that the honey-board might be dispensed with, at the Northwestern Convention, in Chicago, it seemed to him "perfectly preposterous." And "yet," he says, "who can read the discussions in the present number without deciding that, in all probability, the honey-board can be laid aside?" And I must confess that I was very much surprised and pleased to note how favorable Bro. Heddon seemed disposed to be toward the heavy bars (see leading article last issue). We must give our Dowagiac friend credit for being progressive, even if the prospects are pretty bright for knocking out his slat honey-board. How pretty it will be for those whose hives are constructed like the Simplicity, and who can not very well use the honey-board between the extracting-supers, to be able to pull apart the top story from the lower one, without lifting the lower frames up *en masse*, simply by the use of thick bars! And still another thing: There is no sagging with such frames. That feature alone is worth the expense of the change, even if we do not secure that other grand feature, the prevention of brace-combs; and still again, Mr. Heddon says *straighter* and *better* combs are secured thereby. Is it going to knock out reversing too? Our whole apiary will be changed to thick top-bars, just as soon as the trial of a *few* justifies the introduction of more. Let me urge again: *Don't* try too many at once. After you have tested a few you can then act more intelligently; and don't be in too much of a hurry to break up your honey-boards into kindling-wood.

ERNEST.

SIZE OF TOP-BARS. DR. MILLER TELLS HOW WE CAN ALL EXPERIMENT FOR OURSELVES WITHOUT GOING TO ANY PARTICULAR EXPENSE.

I AM thankful for the amount of light thrown on this subject. It seems to be tolerably well established, that there have been quite a number of cases in which the size of the top-bar has effectually prevented the building of brace-combs. Of course, it is understood that too large a bee-space is not allowed; and, indeed, one writer in GLEANINGS claims that, if a bee-space of ¼ inch is allowed, the thickness or width of the top-bar is not material. If all are right, then there are three ways in which we may succeed without a honey-board; viz.: By having a ¼-inch space; by having a top-bar ⅞ inch thick, or thicker; or by having a top-bar 1⅛ inches wide. It is to be hoped there may be enough experimenting next season to settle more fully what is most effective. In the meantime it may do no harm to discuss some of the things to be thought of in making experiments.

WHAT IS THE BEST SPACE BETWEEN TOP-BARS AND SECTIONS?

I have always used ⅜ inch, and I suspect it is a little too much. Still, with the slat honey-board, the ⅜ space has worked well, generally. It is probable that ¼ inch between top-bars and sections might prevent brace-combs, provided the top-bars were not more than ⅜ inch apart; but I fear it would be a difficult thing to maintain for several years a space exactly ¼ inch. The shrinking or warping of lumber would interfere, and, moreover, my bees have a habit of putting propolis in all sorts

of places, at least at certain times of the year. Even with the ⅜ space, I have sometimes had the entire space filled with propolis, and all my top-bars, I think, have propolis on top. With a ¼-inch space I should expect to have some top-bars and sections glued together. Still, this difficulty may not be so great in other places. Let us bear in mind, that what will succeed in one case may not necessarily succeed in another; and it may be well not to decide too hastily. The thickness and width of the top-bar may be changed in a few hives for experiment, without changing any hives. Strips nailed on the sides of top-bars may increase the width, and in that we may find whether top-bars 1⅛ inches wide, with ¼ inch between them, will answer the purpose. To change the thickness of the top-bar, either the hive must be changed, or the depth of the brood-comb. Let me suggest for consideration a plan for trying a few top-bars of increased depth. Take a piece of tin one inch wide, and as long as your brood-frame, and nail it on one side of the top-bar, letting the edge of the tin come flush with the top of the top-bar. Now nail a similar piece on the other side; and if your top-bars are ⅜ thick the tin will cover ⅝ inch of comb, making your top-bars practically one inch thick. If it is desirable at the same time to make the width of the top-bars ⅛ inch greater, wooden separator stuff $\frac{1}{16}$ thick may be used instead of the tin.

CLEATS FOR COVER-BOARDS.

And now a word with Ernest. I don't want to appear quarrelsome, but I feel pretty sure that, after you have tried side by side a sufficient number of the two kinds of cleats mentioned on page 20, you will change your mind, and—your cleats. According to my experience, the difference in convenience in handling the two kinds is sufficient to justify considerable trouble and expense in making a change. The only advantage you claim for the grooved cleat, if I am correct, is that it secures greater immunity from warping. You say, "A cover-board slid into a grooved cleat, and nailed, is a *good deal less liable* to warp than one simply dependent upon *nails*, I think." Let us see. What prevents warping? I suppose it is the strength of the cleat, and the firmness with which the cleat is held on the cover. I think you will readily admit, that a groove taken out of a cleat makes it weaker. The only question, then, is, does the groove hold the board more firmly than nails alone? Undoubtedly it does a little, if the cleat is equally stiff, and if the thin place left by the groove *does not allow the cleat to split.* About 8 per cent of my grooved cleats split before a nail was driven—a thing impossible with the others. You say you had a cover like mine, and it warped. Was the cleat the same size as the grooved cleats? I have two or three hundred that have been in use several years, and I have had no trouble from warping. The nails hold the cleats firmly in place; and on account of the greater stiffness and lesser liability to split, I *think* the plain cleats will allow less warping than those that are grooved. C. C. MILLER.

Marengo, Ill., Jan. 4.

No, no, doctor, you do not appear quarrelsome. If you did so at times, I should know it was with the desire to get at the truth, rather than the desire to establish a point which you had previously put forth. I have talked with our man about grooved cleats, and I told him that eight per cent of yours split. He seemed very much astonished. He said he had nailed up something like a thousand cover-boards, and not one cleat had split, and yet the groove is just a snug fit over the end of the board. Now, it must be, doctor, that you did not put the cleats on right. You can not drive it on, both ends at once, neither can you plow the end of the board, as it were, through the entire length of the cleat, beginning at one end. The proper way is to start the cleat at one end. If the board is a little warped, press on the bowing side, at the same time that you crowd the cleat down. If you put it on thus, I venture to say you will never have trouble. The cleat may be weakened a very small particle after the grooving; but we calculate that it is more than ample to prevent warping, even then; and I still think that such a cleat will hold a board truer than one simply nailed on the end. Another thing, the end of the board in a groove is better protected from the weather. A still more important consideration is, that the cover-boards for grooved cleats happen to be of just the right length to make a box to hold the inside furniture of five or ten hives, without crating, and this in the matter of saving freight is a considerable item. Were we to make a cover as you describe, it would spoil the unique arrangement of the bottom-board, and necessitate a large box around the inside furniture when they are shipped out. ERNEST.

THICK TOP-BARS; NO BRACE-COMBS OR HONEY-BOARDS.

I notice in our last number of GLEANINGS that there is a good deal said about the width and thickness of the top-bars to our brood-frames. I notice, too, that some are getting a little sick of their honey-boards and queen-excluders (at least it looks that way to me), and I have felt just that way for four years. Now, about the top-bars. I have used thick top bars for four seasons, and without honey-boards or queen-excluders, and I have yet to find any brood in my surplus combs, excepting about a dozen drone-cells in the bottom of one section. This was on a very strong swarm this season, from which I had taken nearly all the drone comb.

It is very seldom indeed that I find any brace or burr combs between the brood-frames and honey-crate, although my frames are only ⅞ inch wide, and spaced 1½ inches from center to center, leaving quite a space between the top-bars. Now, although I use this kind of frame, and have discarded honey-boards and queen-excluders entirely, and am not troubled much with brace-combs or brood in surplus cases, I really do not believe it makes any material difference whether the top-bars are one inch thick or half an inch, provided we have just the right space between them and our supers, and the bottom of our supers or crates are properly constructed; but as I have never used any other thickness for top-bars than ⅞, I am unable to say what their use might bring about. One thing I am sure of; and that is, that we very seldom find brace-combs unless the bees find room for them, either by the sagging of frames or the improper adjustment of fixtures. I have 58 swarms of bees in my care—44 of my own, and 14 of my brother's, and

most of the frames look as clean on top as when they were put into the hive.

CHESTER OLMSTEAD.

E. Bloomfield, N. Y., Jan. 8.

From the testimony which we gather from others, I feel quite sure it is the *thickness* of your top-bars that has more to do with the prevention of brace-combs in your case than any nice adjustment of bee-spaces between the brood-nest and supers. Were you to change to top-bars ½ inch thick, you would, I am quite certain, be troubled with brace-combs. Bee-spaces alone, here, won't do it—at least, not in Medina. Read this:

WIDE TOP-BARS, BUT ONLY ⅜ INCH, NOT PREVENTING BURR-COMBS.

For more than 15 years I have used top bars one inch and 1⅛ inches wide, in frames spaced 1 7/16 inches from center to center. The number of hives during this time has varied from 20 to 60. The thickness of the top-bars has usually been strong ⅜ inch, and the spaces at the ends and over the tops of the frames have usually been about ¼ inch—seldom, if ever, more than 5/16. How about burr-combs? Well, this kind of top-bar doesn't always prevent them. I think that I am troubled much less with burr-combs than I should be if I used a ⅞-wide top-bar; but once in a while I find the supers fastened pretty solidly to the tops of the frames. I shall continue to use a wide top-bar, and shall also use a wood-zinc honey-board. R. M. REYNOLDS.

E. Springfield, O., Jan. 9.

Thanks, friend R. Your testimony helps very materially to substantiate the testimony of others; viz., *extra* width *alone* is not sufficient. *Extra width should be coupled with extra thickness*, to prevent burr-combs. One other thing is important; viz., the combs must be spaced accurately 5/16 of an inch apart. With accurate spacing the extra width *may be* dispensed with. E. R. R.

THICK TOP-BARS; NO SAGGING; CALLING FOR VOTES.

I shall gladly welcome an increased thickness in top-bars of brood-frames. But I fear ⅞ is too thick, as that thickness removes the supers so far from the brood-nest. I want them thick enough not to sag, and I want the metal corners retained. I do not want an all-wood brood-frame on the place. My idea is, that ½ or ¾ would be thick enough for the metal-corner wired brood-frames. The frames I now get sag badly in spite of the wire, and leave too much room between the brood-frames and the supers. I want only ¼ of an inch between the brood-frames and supers. I am not certain that an increased width of top-bars of brood-frames would be desirable; but if the majority of the bee-keepers vote for inch-wide top-bars I would fall into line and try them. But I want the other dimensions of the frames retained, so we can use them in the standard Simplicity and chaff hives now in use. You catch my idea by gluing or nailing a ¼-inch top-piece on the top of the present standard brood-frame. You will then have a ½-inch top-bar, and all else the same. Then when we got them we could even up our other frames by gluing a ¼-inch bar on top of our old ¼-inch frames on hand, making all ½-inch top-bars. I think the increase of the thickness of the top-bars of brood-frames to ½ inch is so desirable that you should adopt it as the standard without delay. The machinery for the metal corners I suppose could be set to accommodate the ½-inch-thick top-bars, and still let the frames hang in the hives as they do now. As to increasing the width to one inch, I am not prepared to vote either way just now.

By the way, how would it do to invite a vote of the readers of GLEANINGS as to width and thickness of top-bars of Simplicity or Langstroth brood-frame? I think, that, to prevent sagging alone would be argument enough to increase the thickness to ½ inch, aside from the theory of prevention of brace-combs. The increased cost would be trifling.

I feel sure we can help the brace-comb trouble by making the top-bars ½ inch thick, and reducing the space between the brood-frames to ⅜, the same as the half-depth wide frames are spaced, and allowing only ¼ of an inch between the brood-frames and supers. PHILO S. DILWORTH.

Bonney, Pa., Jan. 13.

No, friend D., the extra width alone will not answer, if I read correctly the testimonials of others. See R. M. Reynolds' statement, just preceding, and note the foot-note. As to the extra thickness removing the brood too far away from the supers, see what James Heddon has to say on this point, page 43. The old ⅜-inch-thick top-bar, with the comb guide, separates the brood just as far away from the supers as the thick top-bars in question, without comb-guides. Besides, do we know positively that this slight separation of brood and supers in the case mentioned is detrimental?—You are correct. Thick top-bars do away with the sagging troubles, even if they do nothing more. I second your motion in calling for votes; but those votes must come from those who have used either the thick or wide top-bars, or both. The votes of those who have used only the thin narrow ones will be of no value. Yes, we want the frames to be adapted to hives already in use. Those we have already advertised are such. ERNEST.

In addition to what Ernest has said, I wish to add, by no manner of means put any thing on the *top* of your top-bars; and do not do *any* thing that will change the outside dimensions of the regular frame. The top-bar can be made thicker almost as easily by slicing out comb, comb-guide, or both, on the under side, and bradding in a strip of wood of the desired thickness. Wired frames, if properly made, should not sag or change. However, as other things seem to demand a thicker top-bar, it may be, all things considered together, the cheapest and readiest method of any thing for preventing sagging.

THICK TOP-BARS; FURTHER FACTS, FROM H. ALLEY.

I mail you to-day a L. frame, such as we have used for a good many years. I think you and all who use the Simplicity hives would like them much better than the narrow top-bar frame. The top-bar sent is 1/16 narrow. It should be 1⅛ inches wide, and ¾ thick. We use 10 frames in a hive, 14⅛ inches wide inside. For 8 frames, of course the brood-chamber must be reduced in width.

Wenham, Mass., Jan. 4. H. ALLEY.

The frame came duly to hand. Thanks. Is this the frame that you have used so many years, and does it invariably prevent

burr-combs? We should think that top-bars 1½ in. wide, spaced in a 10-frame hive 14½ in. wide, would be so close together as to be rather difficult to get hold of.

THICK TOP-BARS AS AGAINST HONEY-BOARDS; BEE-SPACES OR NOT.

I am greatly interested in the thick top-bar brood-frame. Now, friend Root, if this will do away with the honey-board, so much the better. If they will, the frames should come up flush with the top of the hive, then the T tin should be just a bee-space; that is, the double part of it; then turn it upside down. This makes a bee-space on the under side of the crate, and does away with the tin keeping the sections apart, which has been a great fault with the T tin. Now get up something to hold the tins in place upside down. What do you think of this scheme? W. D. SOPER.

Jackson, Mich., Jan. 11.

On account of putting on the cover, we should surely want a bee-space above the frames in the hive. If the frames came flush with the sides of the hive, there would always be trouble in adjusting the cover. It would kill bees, and make no end of trouble. We should prefer thin top-bars with a bee-space filled with burr-combs, rather than thick top-bars and *no* bee-space above them. Our section-holder in the Dovetailed hive obviates the objectionable upright in the T tin, and will also permit the use of open-side sections, and yet have the bee-space on top of the sections.

DOOLITTLE'S CAGING PROCESS OF FORMING NUCLEI.

NOT SUCCESSFUL FOR INTRODUCING.

FRIEND ROOT:—Several years ago Mr. Doolittle gave us a plan for forming nuclei, which seemed new and original, and thereby excited my curiosity. I refer to the caging process. We remember the plan very well, and I need not give it here. I have never had much need to use it; but liking to experiment and try new ways I have resorted to it quite a number of times since it was brought out. Two things were claimed for it: That the bees would not return to the parent colony at all, and that it was a sure way of introducing a queen. Neither one of these has proven true in my experience. At the time, Ernest made experiments tending to show that a portion of the bees did return, but I do not recall seeing reports adverse to it as an introducing process. I will say, whenever I have tried it the bees have been allowed to thoroughly fill, have remained caged in the cellar from four to six hours, until greatly excited, before inserting the queen, after which they have stood over night, and were hived early in the morning. Frequently every thing has worked nicely, except that probably a few bees always went back; but at times the queen was not kindly received. Twice I have found the queen most viciously balled when I went to hive the bees in the morning; and in each instance she had to be caged for two days before they were reconciled to her. Once she was immediately balled when introduced into the cage, and a perfect deluge of smoke liberated her for only the time being.

Last summer I received a Carniolan queen from Dr. Morrison; and not having a handy place to put her, I resorted to the Doolittle "infallible." In the morning the queen was dead. I do not know whether the bees killed her or not. This is the only time I have really lost a queen by this method; but the ones before mentioned probably would have been killed had I not caged them. In working this plan, instead of starting nuclei I usually desired to start a small colony. I have caged a rather large number of bees. I have wondered if such a number would be as likely to be friendly toward a queen as would a smaller and more lonesome number.

Newton, Iowa, Jan. 10. WM. L. DREW.

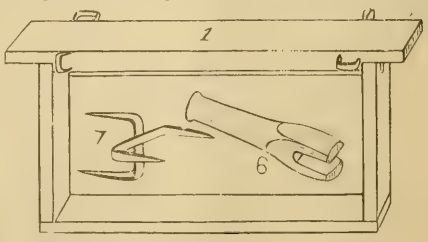
HANGING FRAMES AT FIXED DISTANCES FOR MOVING BEES.

A VERY SIMPLE AND CHEAP WAY OF DOING IT.

MR. N. T. PHELPS, a short time ago, asked if he should send a very cheap, simple, effective distance-keeper for hanging frames, remarking that we had been selling said distance-keepers for several years. Having a curiosity to know what it was, we requested him to send a few sample frames (or parts of them). We give his description below, with engravings, which we have had made from his samples:

Mr. Root:—As you request me, in yours of the 6th inst., to send you an explanation of the distance-keeper that you have been selling for several years, I do so at this time, and so there will be a good understanding of it. I send by this mail a reduced sample (No. 1) of the frame I use, showing how they are applied.

The timber is the true dimension, only each piece is cut shorter, to make it more portable in the mails, and it also shows the point at which they are driven. They are first started with a hammer, and the driving is finished with a set, or punch, with a broad flat end, perhaps one inch by ⅜ inch, with a slot cut across the face of the punch to the depth I wish the keepers to stand out. See Fig. 6. The sample is driven to space the frames 1⅜ inches. To drive them, lay the frame on a flat board, with the top-bar toward you. Drive one in the corner at

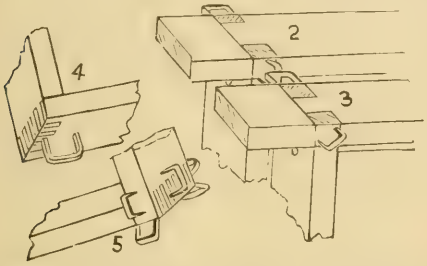


PHELPS' FRAME SPACED WITH STAPLES.

your left hand, then the one in the corner nearest your right hand, taking care that the long way of the keeper runs at right angles to the direction of the long way of the one first driven. Now turn the frame over by keeping the top-bar toward you, so that the two end-bars change places. You will now see that you need two holes in your board to let the two keepers already driven drop into, while you drive two more exactly as you did the first two. If you drive the first left-hand one with the long way in the direction of the long way of the top-bar, do this one so, and the right-hand one in the direction

of the long way of the side-bar. It is a very easy and quick job, and takes longer to tell it than it does to do it.

These sample frames I have marked No. 1. My experience teaches me that they are all that is required on any hanging frame. In the last of July and first of August, 1888, I moved 50 strong colonies, heavy with bees, brood, and honey, on a wagon, eight miles, over roads newly worked, and with some steep hills, and not a comb was misplaced or broken. After the season was over, I moved eleven back that were literally crowded with honey, with the same result. In the spring I moved the other 39 back, when they were as light in bees and honey as at any time, and no combs moved or were broken. No. 2 is one end of the top-bar of Simplicity frame made by you, showing how they can be used on that frame. No. 3 is another way of driving them, but I do not like that way as well as the first one. They can be put on the bottom corners in just the same way, if wanted there; but I know of no good reason for wanting them on any good hanging frame.



SPACER ADAPTED TO THE ALL-WOOD SIMP. FRAME.

No. 4 is a bottom corner of a Simplicity frame, showing how they can be used as a guide to prevent the crushing of bees. And if you wish to carry this "foolishness" still further, No. 5 will show how they can be employed on an invertible frame without projections—do away with all our metal strips and rabbets, and let it stand on its own bottom. All corners are to be ornamented alike. I think they would be a little better if they were made of No. 16 or 17 round steel wire, and perhaps ⅛ of an inch longer. N. T. PHELPS.

Kingsville, O., Dec. 9, 1889.

The staple-spacers may not be entirely new; but whether they are or not, the idea (or invention) has the elements of cheapness and simplicity to its fullest extent; and it may not be so far from being practicable either. It can be adapted to hives and frames already in use, even when the latter are filled with comb. Where bee culture is carried on to any considerable extent, a system of one or more out-apiaries is almost the inevitable result, and out-apiaries means *moving bees*. The hanging frame not fastened, although bees *can be* moved to and from out-apiaries on it, necessitates careful driving and good roads. Our men during the past season, in moving bees, could drive no faster than a walk, and that with extreme caution in places. With a couple of expensive men, one a teamster and the other a practical bee-keeper, to say nothing of a valuable team, slow driving, all because the frames are hanging and not fixed, is expensive. To stop and stick up each frame in a load of 35 colonies, simply for the sake of driving fast afterward, is just as expensive. What we want is frames *always* fixed, always ready for moving at a brisk drive, and yet sufficiently movable to be readily manipulated in the hive. Friend Phelps comes very near hitting it; and while it may not be the best arrangement for hanging frames, it comes very near it. Perhaps a still simpler plan would be, to drive wire staples, half an inch wide, into the wooden rabbets, ⅞ inch apart, in such a way as to space each frame with a top-bar ⅞ inch wide, 1⅜ inches from center to center. This would require fewer staples. The same idea in various bungling forms has been before suggested; for instance, notching out the wooden rabbet. But the end-bars would become so stuck in these notches, by reason of propolis, as to be practically immovable; but the wire staple would be almost entirely free from this objection, besides being cheaper. On the other hand, this would make always a fixed distance of spacing. For wintering, it might be desirable to spread the combs. Again, the removal of subsequent combs would be just as difficult as the removal of the first. Phelps' arrangement would allow of wider spacing in winter, and after the first comb was out the rest could be removed easier.

Let's have suggestions; and in the mean time, let's think it over. We don't want any thing that will increase the expense of the frames more than 10 cents per hive. If honey could be sold for 50 cents per pound at wholesale, we might tolerate some of the expensive frame-spacers. ERNEST.

RETAILING EXTRACTED HONEY IN PAPER PAILS.

HOW 2600 LBS. WAS SOLD RIGHT AT HOME IN THIS WAY.

FRIEND ROOT:—I wish to add my mite to question No. 149. I send you by this mail a paper pail for extracted honey, that I think is just perfection. After having used glass and tin, I find, by two years' trial, that I shall not use either again. Of course, one must wait until the honey granulates, and then they are just as handy as so many bricks. I have sold nearly all of my crop of 2600 pounds, and could sell more than as much again on my home market at 25 cts. per pail, wholesale.

They look rather doubtfully at granulated honey at first; but after the first trial pail they usually come back after more, as my honey was ripened by tiering up, and is very thick and nice. They cost $15.00 per thousand at the factory, complete, like sample, except waxing the corners. This is not necessary if the honey is drawn into them just the last thing before it hardens.

I think if they were more widely known, the home markets would be greatly improved, as the package adds nothing to the price of the honey per pound. This is the point with me, as with J. A. Green in his answer, where he says, "The less we have to pay for a package, the more honey we can sell put up in that package."

Then, a case holding 20 pails or an even 50 pounds is a neat thing to set in a retailer's store, with the little tape ready to hook over a customer's finger.

THE REESE BEE-ESCAPE, AND HOW IT SAVES LABOR IN RIDDING BEES FROM EXTRACTING-COMB.

I met Prof. Cook at our Farmers' Institute, and surprised him very much by suggesting the use of the Reese bee-escape in taking off cases of extracting-combs as well as sections. Now, I can hardly believe that I am the only one who has made this use of the escape, as honey is honey, and why not one kind of a super as well as another.

I put them on in the afternoon; and the next morning, before breakfast, I can have two or three days' work done (with the aid of a wheelbarrow) in carrying in cases ready to extract. This is where the poetry of bee-keeping comes in, as there are no frames to handle, no bees to brush off, no robbers, no stings, no loss of temper, etc., that are the usual accompaniments of the old way, especially in the fall. Sometimes on a warm summer night they would not be quite all down; but by taking out one of the side combs, then spreading the rest and leaving them one day longer, is quite sure for them all.

We all owe Mr. Reese a debt of gratitude for the invention, for I don't think there is a better or easier way of getting honey free from bees, or one with as few faults. I know this has been described a number of times in GLEANINGS, but the reader can hardly realize what a good thing it is until it is tried, and made to work as well as it has with me.

H. P. LANGDON.

East Constable, N. Y., Dec. 5, 1889.

Very good, friend L. We have had the paper pails, such as you show us, for two or three years; but our customers do not take kindly to them. Very likely, however, it was our fault in not starting them right. By some awkwardness, the tape handle to lift it by has been omitted in the engraving. I would suggest that your honey be first allowed to candy; then melt it, and pour it into the pails. Honey once candied is more likely to candy again, and, if I am correct, it becomes harder next time. Ours did not get real hard, and the pails became daubed. —Your remarks in regard to Reese's bee-escape for extracting are certainly a very great item; but your description is not quite clear. If you fasten the bees out of the upper story containing filled combs for half a day, or a day and a half, there must be quite a loss, especially where colonies are bringing in four or five pounds, or even more, per day. Where you speak of two or three days' work, I presume you mean two or three days' work in brushing of bees and handling combs in order to do this. You have no handling of the frames except to uncap and place them in the extractor.—Getting rid of robbers and stings is certainly a wonderful achievement. Why, the invention is a wonderful stride in the business of extracting. If the process has been described in GLEANINGS, for some reason I did not get hold of it before.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

ANOTHER GOOD TESTIMONIAL FOR STINGS AS A CURE FOR RHEUMATISM; BUMBLE-BEE STINGS PREFERRED.

I have seen the bee-sting cure for rheumatism discussed in GLEANINGS to a considerable extent, pro and con; and having had an experience of my own, I thought I would tell it. In 1887 and '88 I was severely afflicted with sciatic rheumatism, and of course I had a great many cures recommended, and I read of many. Among them was the bee-sting cure. I was living in Texas at the time. I went to the famous hot springs in Arkansas, and spent a month there, and received some benefit. I then came to my old home in Ohio; my rheumatism still troubling me severely—so much so that I resorted to opium for relief; but remembering the bee-sting cure, I tried that with good results, as I am and have ever since been free of sciatica. I attributed it to bee-stings; but I want to say I did not confine myself to the honey-bee alone. I used the honey-bee, the wasp, yellow-jacket, hornet, and bumble-bee; and I must say, when they can be had I should prefer the latter, especially the smaller ones, as they will insert their medicated needle a dozen times or more quicker than you can say Jack Robinson. You can easily take them between your thumb and finger, and they will work their medicated instrument as fast as you can move your hand, and leave a redhot streak behind, and you will realize as good if not better results from the bumble-bee; and then we use that which is of but little benefit to us—at least not as much as the honey-bee. The only advantage of the honey-bee is, they can be had at any time of the year, and are always primed to do their work. I tried some the other night, when I felt rheumatic pain in my knee. My wife went out and got some that failed to get into the hive. She brought them in, and we warmed them a little and put them in a position to do their work; and I must say they did it with the relish of a real live bee. I will say, the result was the same from any of the insects named.

Maxville, O., Jan. 6. D. HENRICKS.

And so, friend H., it is really true that bee-stings do give relief; and not only the stings of honey-bees, but of wasps, yellow-jackets, and hornets. May the Lord be praised for this testimony that is coming so thick and fast in regard to bee-stings as a remedial agent! So bumble-bees sting repeatedly, without losing their sting, do they? If I had ever heard of it before, I had forgotten it. But it seems to me that their stock of "medicine" would run out sooner or later if they kept on in that style. No wonder you likened it to a "redhot streak." By the way, old friend, haven't you an unusual amount of grit, to sit still and take bumble-bee stings after that fashion? You should have had half a dozen schoolboys standing around to enjoy the fun. Who can say that honey-bees and bumble-bees were not intended by the great

Creator, to furnish pure unadulterated medicine, right from nature's laboratory, already furnished with an instrument, fashioned beyond any thing that human hands can make, to place the remedy right where the disease is located?

SAN DIEGO CO., CAL.

We copy the following from the San Diego *Union*, Jan. 5:

Although San Diego has by far the largest number of hives, the amount of honey produced is not proportionately as large as the output in a number of other counties. This is doubtless owing to the fact that the industry in this county is young as compared with that in other sections; but more satisfactory results may be hoped for as keepers become more acquainted with the requirements and proper management of bees in this climate. The pasturage for bees in the southern portion of the State is white, black, and button sage, alfalfa, alfilaree, button-bush, etc., while the honey crop in the northern sections is gathered principally from wild clover, yellow sage, holly, California lilac, incense cedar, and alfalfa. About two-fifths of the hives in California are of the Langstroth style, the remaining three-fifths being Harbison, Merriam, and American hives. It is computed that two-fifths of the honey crop of the State was gathered from the various kinds of sage, one-fifth from alfalfa, and the remaining two-fifths from the various other kinds of wild bloom.

A statistical table gives the number of bee-keepers in San Diego as 100; hives, 17,000; pounds of honey, 260,000. Total bee-keepers for the whole State of California, 517; total hives, 64,630. Total honey, 1,092-900. I am inclined to think the above is hardly complete; for, judging from my visit, I think I could certainly have found more than 517 bee-keepers, without any trouble; for the State of Michigan, as reported in another column, has 4487 bee-keepers. Very likely, however, there may not be more that 517 in California who number their colonies by the hundred.

THE STANLEY EXTRACTOR.

I see you want reports from those using the Stanley extractor. I have used one for two seasons, and I like it very well. Last summer I extracted between 11,000 and 12,000 pounds of honey with it. I think it would improve it if it had a gear on it. It takes a man to work it. It will not do for a woman. My bees did well. They paid better than the farm. I am a farmer as well as a bee-keeper.

NOT IN FAVOR OF SKUNKS.

I see in the last GLEANINGS that Mr. France is in favor of skunks around the house. I am not in favor of them. A year ago last summer I got up just at daylight, and found 37 nice chickens dead that a skunk had killed. Skunks will suck eggs, all they can find. CHAS. BLACKBURN.

Lamont, Iowa, Jan. 6.

STRAWBERRIES IN BLOOM; POLLEN FROM CEDAR; CORN UP, AND APPLE-TREES LEAVED OUT.

The honey-flow was almost a failure until very late in the fall. All Italians secured enough from red clover to winter on. Blacks are dying out, or, rather, starving out, all over the county. I went into winter quarters with 140 two-story hives filled with bees and honey. All are in fine condition; and to-day they are bringing in pollen with a rush from the cedar. Last year the first pollen was gathered from the cedar Feb. 14th. We are having a remarkable winter—only one little freeze the middle of November. At least half of the farmers in this county killed their meat, and to-day there are thousands of pounds spoiled. My strawberry-bed is full of bloom, as in spring. Berries are as large as buckshot. Apple-leaves are as large as a quarter. I saw some green corn to-day in my garden, 10 inches high. Thermometer is 75° this evening; wind has blown from the south and southwest for three weeks. R. B. WILLIAMS.

Winchester, Tenn., Jan. 7.

EARLY SEASON IN NORTH CAROLINA.

I write you an item of news from the old North State. Dec. 28 my bees were coming in with loads of pollen; again on January 4th until to-day, when they are coming in with their baskets full of pollen from the maple timber, which is in full bloom at this date. This is at least one month earlier than usual. I took a peep into my hives to-day, and found the queens laying, and some brood started. So far this winter we have had but a few days of cold weather. Irish potatoes are up in the open ground, four inches; every thing is putting on the appearance of spring. The honey crop of last year was light in this section, owing to continuous rains. We hope for a better honey season this year. The queen of my hive appreciates GLEANINGS very highly. B. C. GRIFFITH.

Griffith, N. C., Jan. 7, 1890.

A SHRUB WHICH BLOOMED AND YIELDED POLLEN TO THE BEES IN MASSACHUSETTS DURING CHRISTMAS.

I send a small branch of a hardy shrub now in bloom out of doors; and, strange to relate, I saw several of my Italian bees gathering pollen from the bloom to-day. Only think of it! a hardy shrub in full bloom in January, here in Massachusetts, within 25 miles of cultured Boston! It was in bloom Christmas day, and the bees worked over two hours on it that day. It will remain in bloom until April, as it did the same last winter; but I did not see any bees on it then. It is very fragrant, and can be noticed several feet away from the bush. It is a Japanese shrub, and is called Chapman's honeysuckle. It is a symmetrical shrub, now about 5 feet high. I procured it a few years ago of an importer of novelties and rare plants.

West Mansfield, Mass., Jan. 6. W. O. SWEET.

We believe, friend S., that the Japanese honysuckle has been discussed in our back volumes.—We, too, have been having a wonderful winter; but at this date, Jan. 22, the weather has changed, and the thermometer is now only 5 degrees above zero.

TO LEVEL THE GROUND OF AN APIARY.

Next April I wish to plow, harrow, and roll the ground that my 50 colonies of bees now stand on. Of course, I shall have to move the bees first. Now, when the bees are placed back on said ground can I place them to suit myself, or will the hives have to be placed on the same stand they occupied before plowing? BEE-KEEPER.

Friend Bee-keeper, I scolded a little because you did not send your name; but your question may be worth something to others as well. You can put your hives in a different position if you choose, but there will be much greater risk of loss. They may settle down so as to divide the lost bees pretty fairly; and, again, they may overrun certain colonies, kill the queens, and have no end of fighting. I would fasten them all

in the hives during the operation, choosing a day cool enough so they will not be likely to smother, and then get them all back into their proper places as quickly as possible, before letting them out. If you had told us where you live, we could judge better as to what the weather may be in April; but, as a matter of course, they will fly before removing, and are pretty sure to immediately afterward.

REPORTS ENCOURAGING.

SIX YEARS OF SUCCESS IN BEE-KEEPING; A NET PROFIT OF $1684.

As this is a holiday I thought I would send along to you a report of my six years' success in bees and honey, as the years of failure are to come as yet. Now, friend Root, what I have done in these years, I don't say everybody in this wide world can do. It would be an impossibility without the gifts and qualifications. These gifts, in the first place, are love, then patience, and continual looking for the reward. I believe this is a special calling for the Lord's children, not so much for the money as for the pleasure in looking after and caring for one of the smallest of God's created insects for the sustenance of man in this last age of opposition to the truth as it is revealed in Christ Jesus.

By legal calling I am a farmer and dairyman.

I added one swarm of bees to this calling in 1884. From this I received 40 lbs. of honey, and increased to three colonies in the fall, at an expense of $12.

In the spring of 1885 I added two more colonies of Italians, which I increased to 19 in the fall, w th 500 lbs. of honey. Expenses were $38.00.

In 1886 I began with 19 swarms, and increased to 43 in the fall, with 2000 lbs. of honey. Expenses were $76 00.

In 1887 I began with 19 swarms, having sold 20; three died; one queenless. I increased to 35 in the fall, with one ton of extracted honey. Expenses were $72.00.

In 1888 I began the season with 30 colonies, having sold some of the increase. I increased to 43 in the fall, with 750 lbs. of extracted honey. Expenses for the season were $90.00.

In 1889 I began with 40 colonies, from fine to medium, all in chaff hives, and increased to 70 in the fall, with 7200 lbs. of extracted honey.

In summing up these six years, or seasons, of bees and honey, I find my books give a record thus:

Total sum for outlays, cash, throwing work in, is	$ 347.
Total proceeds from bees and honey	1401.
With 70 stocks of bees valued at $9 00 per colony	630.
Total	$2031.
Deduct outlays	347.
For anxiety and care of bees	$1684.

Townsend, Ont., Dec. 25. D. JEFFREY.

Well done, friend J., not only as a bee-keeper, but as a man and a Christian, in recognizing and making use of the gifts bestowed upon you by the great Father; and I especially commend the point where you mention love and patience as a qualification for a bee-keeper. To succeed with bees you must love them; and to succeed with strawberries you must love the plants. Mind you, I say *plants*. You can love the berries too, if you choose; but the main thing is to have a real genuine love and affection for the beautiful, bright, energetic little plant that God has given us. Such a love not only helps you to succeed, but it helps you to be happy, and to enjoy your work. Show me the man who has fallen in love with strawberries, and I want to get hold of his hand, and call him brother, and just so with honey-bees.

4200 LBS. FROM 50 COLONIES.

I had 50 colonies and one weak nucleus, spring count. I secured 4200 lbs. comb honey, as near as I can get at it, and I can come pretty near, for I shipped the greater part of it. I increased to 68 colonies and 10 nuclei. Scarcely any increase was allowed until after the honey harvest. Then I formed nuclei, and queened them with those cheap hybrids advertised in GLEANINGS, and they were nice and prolific. I got some from Connecticut, Arkansas, and Illinois. Two died in transit, which were replaced. Those men acted honorably.

E. B. MORGAN.

Cleveland, Lucas Co., Iowa, Jan. 13, 1890.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

STATISTICS OF THE HONEY INDUSTRY IN MICHIGAN.

We clip the following from the Saginaw *Courier:*

The returns of supervisors show 4487 bee-keepers in the State, and 35,513 colonies of bees in the spring of 1889. The honey product of 1888 was 559,802 pounds of comb and 97,600 pounds of extracted honey, with 7111 pounds of beeswax.

A HEAVY HONEY-DEW.

There was a heavy honey-dew in this section of country about the middle of September, and then there was another one in December, lasting up to Christmas. It was just dripping from the pines, laurels, and ivies. MRS. C. L. PENLAND.

Lavinia, N. C., Jan. 6, 1890.

POLLEN FROM SOFT MAPLES.

To-day a large soft-maple at our back door is in full bloom, and neighbor Kloer's bees are just making things hum, gathering pollen and honey. What's the use of living in Florida?

Terre Haute, Ind., Jan. 11. CHAS. H. PHELPS.

THE MILDEST WINTER IN 13 YEARS.

We are having beautiful weather, and bees are having fine flights, gathering pollen in full force from soft maple. We are having the mildest winter that has been for years. I have never known bees to work as early in the season as this since I have had any, and that is 13 years. LOUIS WERNER.

Edwardsville, Ills., Jan. 11, 1890.

HONEY FROM THE MAPLE IN FLORIDA.

Our bees are doing wonders. They have filled the hives full of honey the last two weeks, actually crowding the queens for brood space. They are making ready for swarming, and are hatching drones in many of the colonies. This honey-flow is from the maple, which commenced to bloom about three weeks ago. J. CRAYCRAFT.

St. Francis, Fla., Jan. 3.

POLLEN IN JANUARY.

Our bees are bringing in pollen from the alder to-day, one month earlier than I ever remember of their doing before. S. R. NEAVE.

Hughesville, Md., Jan. 5, 1890.

NEW HONEY IN DECEMBER.

We have May weather here in December. I could extract 5 gallons of new honey, for I have plenty of combs that are about ready to seal, that were perfectly empty ten days ago, and a plenty of brood in all stages, from the egg to hatching.

J. W. TAYLOR.

Ozan, Hempstead Co., Ark., Dec. 26.

BEES GATHERING POLLEN AND HONEY IN DECEMBER.

My bees and my neighbor's have been gathering pollen and honey for the last week, Christmas not excepted. They are roaring in the maples to-day. I looked at a hive of mine yesterday, and found young bees and eggs plentiful. I should like to hear from some one further south on this question. I should like to hear from friend Root also, to hear what he thinks the result will be next spring.

C. S. HACKWORTH.

Oliver's Springs, Tenn., Dec. 27, 1889.

A GOOD QUESTION.

Do bees always gather their entire load of honey or pollen from one kind of bloom? I have watched them closely for two years, and have never seen the first bee go from one flower to another kind to finish. J. P. RALSTON.

Uniontown, Kan., Jan. 9.

[I believe that bees usually confine themselves to one flower, but quite a number of exceptions have been reported. During a time of drouth, when the bees are hunting here and there to see what can be found to enable them to turn an honest penny, they certainly hover around and examine a great variety of flowers. When a bee is loading up, however, as a rule it takes the same plant.]

A QUESTION FOR DOOLITTLE.

Mr. Doolittle's article, on not raising drones, is very fine indeed. But he does not tell us what to do when we take out the frame with a lot of drone-cells, and also lots of worker brood in the same comb. We don't want to hang such up to dry, do we? J. W. SMITH.

Moscow, Vt., Jan. 6, 1890.

[Mr. Doolittle replies:]

The only thing to do in this case is to cut out the drone brood and fit worker comb in its place, unless you have weak colonies at such a time that the frame of brood—minus the drone—can be set into. The combs should be looked after in early spring, before there is much brood in them.

Borodino, N. Y., Jan. 9. G. M. DOOLITTLE.

QUEEN-EXCLUDING SEPARATORS.

Would not metal separators be better if perforated like the zinc you make? I think they would answer the same purpose, and be more convenient for the bees. F. E. THOMPSON.

Tiskilwa, Ills., Jan. 8, 1890.

[There would be no particular advantage in separators perforated so as to be queen-excluding, over separators perforated with larger holes. Besides, the first cost would be too much. Comb honey does not sell at a price to warrant such expense in the supers. And, by the way, who is prepared to say that perforations in separators are of any real advantage? We have made perforations of all sorts and sizes, for years past, and for a great many different parties; but my impression is, one after another is dropping the perforations, and going back to plain wood or tin. Am I right, friends?]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 153.—*a. What sort of hive cover do you prefer—that is, should it fit upon the hive telescope fashion? b. What distance above the brood-frames should the cover-board be when on the hive? c. Is it an advantage to have the cover five inches or more deep, so that the cushion or honey-case may be used under it? d. If you use a deep cover, or a cover more than a bee-space above the frame, how do you prevent the building up of burr-combs at the approach of the honey-season, before putting on the surplus cases?*

Plain board. No. b. Scant ⅜ inch. c. Think not. d. Don't any more.

Michigan. C. A. J. COOK.

a. That is my style of cover exactly. b. ⅜ inch. c. I think not.

Ohio. N. W. H. R. BOARDMAN.

a. A plain board, well cleated at the ends. b. ¼ inch. c. It is no advantage, at least here in California.

California. S. W. R. WILKIN.

a. A plain board, cleated at the ends. b. $\frac{5}{16}$ of an inch. c. No advantage that is not greatly overbalanced by the disadvantages.

Illinois. N. C. J. A. GREEN.

a. I prefer to have the cover fit upon the hive telescope fashion. b. About $\frac{5}{16}$ inch. c. It is. d. I put on my surplus cases before the honey-season is well opened.

Wisconsin. S. W. GEO. GRIMM.

Our Quinby frames rest on the bottom-board; a cap with cover nailed on fits down over the frames, resting on the bottom-board. We use a quilt between.

New York. C. P. H. ELWOOD.

a. I so use my cap or hood, which is 8 inches deep. b. I use a bee-quilt over the frames when the sections are off, together with a sawdust cushion. c. I so consider it. d. As at b.

New York. C. G. M. DOOLITTLE.

a. Yes. b. We use a honey-board directly over the bees, ⅜ of an inch above the top of the frames; then our hive top, or cover, is 6 inches deep above the honey-board. That gives room for a cushion over the honey-board, under the cover, for winter.

Wisconsin. S. W. E. FRANCE.

a. I use an 8 or 9 inch cap. c. Yes, more than 5 inches; from 7 to 10 inches, so that, in the early season, the cushion may be used over the honey-case. d. It is time to give bees some surplus room whenever they build comb above the brood-chamber.

Illinois. MRS. L. HARRISON.

a. For my style of hive, with the frames even with the top of the body, I use a cover with a two-inch rim under the cover-board. b. That depends upon the hive; from a bee-space to such distance as best suits the bee-keeper. d. See a. I don't prevent it.

Ohio. N. W. A. B. MASON.

a. I use a cover with a 2-inch space, like the lid of a trunk, because it makes a dead-air space, which prevents the too great heat of the sun on the combs. d. By using enamel cloth.

Louisiana. E. C. P. L. VIALLON.

After much experience with telescope covers I have settled upon a flat cover like the Dovetailed, only the under surface is entirely flat. I don't like the cleat projecting downward. b. 5/16 or 3/8. c. I think the disadvantages overbalance the advantages.

Illinois. N. C. C. MILLER.

The covers of my hives are calculated only to turn the rain. The covers for the brood-nest and the honey-boxes are the same, and independent of the outside cover. The outside upper story is part of our hive, like the outside cover. They protect the arrangement of the surplus honey inside, whatever that arrangement be.

Ohio. S. W. C. F. MUTH.

a. No; no telescoping business whatever. You can not handle the hives rapidly with the telescoping or beveled arrangement. b. Scant 3/8 inch. c. No; you should use no cloths, quilts, or any thing of the kind, in connection with your cover. Use a flat cover with the proper bee-space between it and the tops of the brood-frames. d. I do not use any such cover. Those who do use the pestering and annoying quilts or cloths must manipulate bees more slowly.

Michigan. S W. JAMES HEDDON.

a. I use a gable roof to my hive-caps, which rests on rabbets. I do not like to have covers set over the hives telescope fashion, as one is too liable to disturb the bees when removing the cap. b. I believe 5/16 is the proper distance. I have experimented somewhat in this matter. c. Yes. d. By using a honey-board or a brood-box cover as called by some, inside the cap. We do not all call things by their right names. What I call a honey-board is what some call a cover; and what some call a honey-board I call a queen-excluder. Which is which?

Vermont. N. W. A. E. MANUM.

The telescope cover is better than the bevel edged; but a flat cover resting on a level-topped three-inch wall is better yet. b. Depends on the kind of fixtures used. I like the top-bars just level with the top of the hive. c. The cushion on top is a valuable addition when wintering outdoors; but it can be used without deep covers—both with an upper story and without. d. My supers go on in spite of the burr-combs, unless they have got very tall. In that case I cut them off and take my pay in wax.

Ohio. N. W. E. E. HASTY.

a. I prefer a flat cover, fitting evenly on the top of the hive. b. About 5/16 of an inch; if any thing, less instead of more. c. If you winter outdoors, packing only on top, it might be an advantage; but for such packing, an extra case can be substituted. The advantage, we think, would be in favor of the extra case.

d. Where a deep cover is used, and enamel cloth well down on the frames, burr-combs are not built to any extent. If the enamel cloth is removed frequently, burr-combs will be built, and will have to be broken down.

New York. E. RAMBLER.

a. Most of our Gallup hives have covers nailed on two cleats, the length of the hives. The cleats are one inch thick, using lumber ½ inch in thickness. The grain of the wood runs across the hive, making a strong and light cover. b. We aim to have ours 3/8 inch. c. I should say no, unless to cover the comb-honey arrangements. It might pay in cool seasons, in the production of comb honey. d. We do not let ours have room above the brood-frames until surplus arrangements are on.

Wisconsin. S. W. S. I. FREEBORN.

a. We prefer the cover larger than the hive, and resting on square slats nailed outside. The combs are thus better protected against rain and moths, whose eggs are laid from the outside, where the propolis is in reach of the female moth. b. Our cover is 8 inches deep, so as to give room for every emergency; for instance, in feeding bees; to accumulate straw, sawdust, or dry leaves on the top of the combs for winter; to protect the surplus boxes, etc. d. As we put on the frames, an oil cloth covered by a straw mat; and as these rest on the frames, the bees have but little if any occasion to build any brace-combs, or burr-combs, as they are called, above. It is when there is a space above the frames that the bees build these combs.

Illinois. N. W. DADANT & SON.

a. Nearly all bee-keepers prefer such hives as they have become accustomed to using; and for that reason, if no other, I prefer the old-fashioned telescope cover, at the same time fully appreciating some of the objections to them. I used a few flat covers during one season only, and they were on ill-made hives; so my judgment, as between those two styles, is of little practical value. I have had in use, during the past two years, several hundred covers, 2 inches deep, fitted on beveled-edge hives, and I very decidedly dislike them. b. From 2 to 6 inches, depending somewhat on other fixtures of the hive. c. No, not as a rule. d. When using covers more than a bee-space above the frames, enameled cloth is almost an absolute necessity for the purpose indicated.

Cuba. O. O. POPPLETON.

If I am correct, the present general preference seems to be for a flat wooden cover resting on the top of the hive, so as to come just a bee-space above the tops of the frames. I used a similar arrangement nearly twenty years ago; but the workmanship was probably poor, for my covers warped, and robbers pushed their way under, so that I then decided I never wanted any more of that sort. A good many are now using eight-frame hives, like our new Dovetailed hive, and this makes it much easier to have covers that fit bee-tight, because a narrow board is used, and it is not so difficult to crate it so firmly that it can not be warped. The covers that made me so much trouble, set over the second story of the old Langstroth hive; and as this second story was wide enough to slip over the ten-frame *lower story*, it took a pretty wide board for a cover. I believe we are indebted to friend Heddon—at least to a considerable extent—for the new order of things in the matter of covers. With the flat cover, enamel cloth, quilts, burlap, and every thing of that kind, can be discarded, except when we prepare the bees for winter.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

IN WHAT SHAPE SHALL WE MAKE OUR GARDEN?

THIS question comes to me over and over. I suppose the market-gardener, or he who raises garden-truck solely for the money there is in it, is not expected to pay very much attention to the *looks* of the premises. Well, even if this be true, a great deal depends on how the garden is laid out. Not only for looks, but for the sake of economy, there are certain things that must be carefully considered. For instance, early cabbages, early peas, early sweet corn, and quite a lot of these things, come off the ground at about the same time. Now, if you could put them all together side by side, and clear the ground of them all at once, cover it with manure, plow it, harrow it, furrow it, it would be a great deal cheaper than if you were obliged to take a team and the tools on to three or more separate strips. I have sometimes had a little strip of ground vacated; and as I did not wish to lose the use of it, it was prepared all by itself for another crop. But the strip was so small, that getting out the team and tools to get it ready was more bother than it was worth; therefore we wish to have these things, that mature about the same time, all together as much as possible. A good many will be very much averse to fussing with little patches, at all; but one of the hardest lessons I had to learn was to avoid getting *too much* of a thing all at once. For instance, for three successive seasons we had more early peas than could be disposed of profitably. The price went away down to ten cents a peck, or less, and everybody got tired of them. When we get our ground all ready to sow peas with a grain-drill, it seems a hard matter to go just the length of the ground once and back again, and stop. But in our locality that is just about enough for the time being. Our nice ground is about 30 rods long. Last season we found a strip on one side that was dry enough to work fairly by the first of April. We prepared it nicely, with great pains, then took our seeds to the field with the grain-drill, and sowed as follows: With Alaska peas first, we went up and back again. The same thing with American Wonder, and the same with Stratagem. As a result, we had just enough Alaskas to supply the demand, at 40 cents a peck. Just as the boys began to say they would have to sell them cheaper, the American Wonder was fit to pick; and as the quality was so much better, they went off readily at the same price. When the American Wonders were gone, the Stratagems came in; and as these were fully as good as the American Wonder, and very much larger (less work to shell them, you know), they also brought 40 cents, without trouble. Later sowings of Stratagems were made at proper intervals, and I may say we had peas from June until frost, and almost every kind of pea brought 40 cents a peck. This was because we did not have such a surplus as to at any time *overstock* the market. Before sowing our Alaskas with the grain-drill, perhaps I should mention that we put in a little patch by hand on a southern slope. These came in just before the long rows of Alaskas. Most of these sold for 50 cents a peck. Now, at the same time we put in the three different kinds of peas, we went through once with the grain-drill, with Corey's Early corn; we then came back with Golden Wax beans; then a piece was left for early cabbage. Next to the cabbage we put Early Ohio potatoes, most of them started in the greenhouse. This took about an acre of ground, and this acre was vacated almost at the same time, and was fitted for other crops all at once. Now, while we do all this we want to manage to make also a certain *rotation* of crops; that is, we do not want to have the same thing on the same ground year after year. It is said, however, that onions do just as well, or even better, on the same ground; and some one has said that lima beans do just as well year after year on the same plot. I am inclined to think this may be so, for we have a piece of clayey upland that always gives us a big crop of lima beans; but if we try them on our rich creek-bottom land, we have lots of vines but very few pods that get ripe. Now in regard to looks.

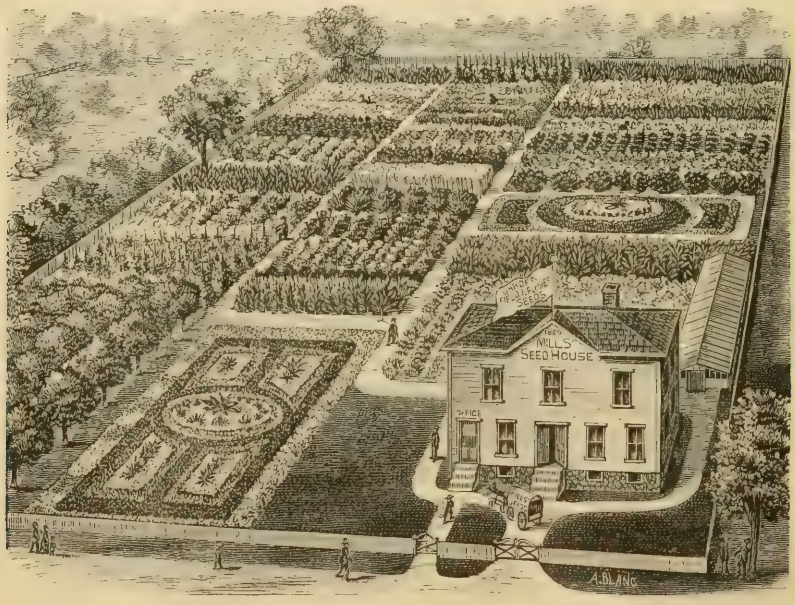
A garden looks very pretty made up of long rows of different kinds of vegetables; and I think it looks enough better to have complete whole rows—no halves nor quarters. When sowing with a grain-drill we put *almost* enough seed into the drill to go through; then we keep careful watch, and put in a handful at a time, to make it hold out. A *good full stand* of any crop also presents a pleasant appearance to the eye. The only way to secure this, that I know of, is to put your plants pretty thick, and thin out the surplus. This is a task, I know; but we can, by running the drill empty on smooth hard ground, by repeated trials, set it to sow just enough and no more.

In order to get on the ground to draw manure, bring on the tools, and gather the crops, we need some permanent roads. I have many times decided that I would have a roadway clear around the outside of the ground. At the ends of the rows this roadway makes a nice place to turn around with the horse and cultivator. On the *sides* of the long strip you lose some ground; but I am inclined to think that it pays. If the piece is large, you also want a road through the center. Then a road at right angles is also very convenient, and it helps to make the ground look tasty, as well as avoids the necessity of tramping down crops. But this crossroad is a nuisance when you come to cultivate. I know you can jerk up the cultivator as you come to the road, and then drop it as you get across; but more or less dirt is pulled into the road. I have sometimes had a man take a shovel and clear the road out after every cultivating; but this is

somewhat expensive. In the same way, after running the manure-spreader over the ground, I have gone to the expense of shoveling out the roadways. With strawberries, raspberries, currants, etc., we have to meet the same thing. I have been so much pleased with the little sketch of the grounds of one of our seedsmen, that I asked him to loan the cut to me. Here it is.

Well, friends, what do you think of it? Wouldn't almost anybody like to be a seedsman if he could have a seed-house like that, with grounds and garden beyond? The cut is the work of a professional horticultural engraver, Mr. A. Blanc. He has wonderful taste in that direction. Perhaps on this account this pretty picture is somewhat of an ideal one. We do not know how much ground Mr. Mills has laid out thus tastily; but, judging from the human figures, covered wagon, and seed-house, there must be from one to two acres. I think I would go a couple of hundred miles to see a garden just like that in reality. It is very pretty, and it is worth a good deal of hard work to be able to produce any thing so handsome. We do not notice any weeds, neither are there any crops past their prime, waiting to be cleared up, nor any appearance of rubbish, heaps of weeds, brush, briers, cabbage-leaves, turnip-tops, nor any thing of the sort. The engraver has usually an advantage over the photographer in this line of work. The camera takes every thing true to nature—rubbish and all, while the engraver can omit the objectionable features. Near Arlington I saw some gardens pretty nearly as perfect as the above; and in California I saw orange-groves that were handsomer, more symmetrical, and neater, than any picture ever put in any catalogue. In portions of California, however, there were many very sad-looking tracts of run-down, deserted gardens. No *climate* in the world will do it alone. It must have a live man to watch over it. I suppose the garden of Eden itself would have soon run down without Adam to take care of it.

Now, reader, what is *your* plan for a garden in the spring of 1890? Friend Mills has a very pretty greenhouse, just back of the seed-house, near the fence. If you haven't any other occupation to take up your spare time, I think you will enjoy just a little bit of a greenhouse—say as large as you can afford; and then I am sure that you will enjoy your garden outside a great deal more if you carefully go over it, and plan it during winter evenings. Lay off your ground on paper; decide just how much of every thing you can dispose of safely; estimate how much ground it will take to grow it; figure closely how many seeds will be needed, and have every thing in readiness to go at it when the weather permits. Friend Mills has not got his pretty garden laid out in long rows, so as to be worked by horse power. If the seed-garden is purposely planned to raise *seeds*, perhaps he will not use a cultivator very much, although I think it would pay, unless the land is pretty expensive. Most of his crop could be put in rows, so as to be cultivated with the help of a small horse, almost as well as in beds, as he has it. By the way, we recently purchased a pony, small in size, with very small feet, with the view of training him to draw a small cultivator in very narrow rows. His feet are so small that he would not damage a Wakefield cabbage, even if he should step on it. Blue Eyes stipulates, however, that he is to be used for cultivating the garden, only when she does not need him to ride horseback. So you see there is



SEED-HOUSE AND GROUNDS BELONGING TO F. B. MILLS, THORN HILL, N. Y.

a prospect that "Billy" will serve in two different capacities at the Home of the Honey-bees.

MYSELF AND MY NEIGHBORS.

But Jesus called them [the disciples] unto him, and said, Ye know that the princes of the gentiles exercise dominion over them, and that they that are great exercise authority upon them; but it shall not be so among you.—MATT. 20 : 25, 26.

MOST of you will remember that these words were spoken to the disciples just after two of them had been begging for the highest places. It has been my theme at least once before; but to-day I wish specially to call attention to the last clause of the text—"But it shall not be so among you," meaning that we who follow Christ must not—*shall* not, exercise dominion or authority upon others. If we happen to be blessed with wealth and authority, if we be Christ's followers we must be very careful indeed how we exercise that authority. There is to be no "lording" over his fellows, with the true Christian. I hardly need say what it is we are to do, for that has been my theme so often—"Not to be ministered unto, but to minister."

Just now, during the close of the 19th century, there has been considerable stir, a good deal of talk, and much has been written in regard to this standing evil (and I do consider it a standing evil), of permitting a few to domineer and to dictate, and even be harsh and cruel to those round about them, just because they happen to be in a place of authority—very often because they happen to have *money*, while those who wait upon them do not. Statesmen, and those versed in political economy, are discussing the matter, and suggesting remedies. The laboring classes are also discussing the matter; and instead of *suggesting* remedies they have been organizing strikes, in order that they may *dictate* and exercise *dominion* over the *capitalists*. I am not going to say here who is right or who is wrong. I think I will, however, finally say that, in some respects, I am glad there have been strikes. I do not mean by this, however, that the strikes are right, any more than I mean that the men who control the money have always been right, for there has been a wrong and a transgression on both sides. Some of you may take me up for using the words "has been." I say so, because I believe a better way is now coming to the surface; and, if I am correct, these better ways are now in vogue, in adjusting differences, to a greater or lesser extent. May God hasten the time when all such differences shall be adjusted in a *Christianlike* way, and when no one, no matter what his position, or how great his wealth, shall so far forget himself as to begin to dictate and domineer over his daily comrades! With this preface I propose to come down to our "homes," or, if you choose, to "ourselves and our neighbors." Are *we*, friends, guilty?

While at Lansing, Mich., I was greatly interested in another convention, or institute, as well as the bee-keepers' convention. It was a convention of the *schoolteachers* of the State of Michigan. I should say there were a thousand or more gathered at that one institute. Now, even though I *am* president of the school-board of Medina, I have not yet had time in my busy life to find out whether the State of Ohio holds a similar convention or not. I trust it does; and I hope, too, that the young men and young women whose task it is to teach Ohio's children will compare favorably with the bright, keen, healthy, and (judging from their looks) pure-minded boys and girls, or, perhaps I should say, gentlemen and ladies, who met at Lansing. I was enabled to see more of them, because, like the bee-keepers, they had obtained special rates at the Hudson House. There were so many schoolteachers and bee-keepers that the hotel was literally packed. Some of us were nearly if not quite an hour in getting our dinner, and the house was full—waiting-rooms, halls, stairways — schoolteachers everywhere. Mrs. Chaddock said, "GLEANINGS is a humanity paper." Its editors are, therefore, *humanity* men; and at least one of them is greatly given to the *study* of humanity. I do not like to be called an eavesdropper, but I have for years been in the habit of listening to the talk going on round about me, when traveling, that I may study, weigh, and measure humanity as we find it. At the Hudson House there was a constant buzz of talk. The teachers kept it up at the tables, and I am glad that they did. And, oh how I loved to hear them talk! Of course, they used "good grammar." Many of them were young, and had not yet acquired a good command of language; but their words were well used and carefully chosen; and, judging from their talk, the themes that filled their hearts were, oh so good and pure! Boys and girls were mixed up together; but there was no senseless flattery, nor any thing approaching flirtation going on. They seemed to be a steady, sober-minded class who felt the weight of the responsibility resting upon them—the responsibility of training and caring for the children of the State of Michigan. They were not *dull* nor *stupid*. There was lots of fun going on, but it was pure, honest fun—fun that did not wound the feelings, nor reflect on anybody. The tables were crowded, and many of the friends had to wait a long while before they were served; but I did not hear one word of ungentlemanly or unladylike reflection from any of the *teachers*.

In putting up at first-class hotels I meet a certain class of individuals, to a greater or lesser extent, whom I have not yet learned to classify. I almost always meet them. They are not sociable; in fact, they never see anybody at the table except the waiter. The waiter is, however, given pretty soon to understand that they are at home at the table of a hotel. I have sometimes thought they got waited on *first*. I do not exactly know how they manage it, either. Perhaps the waiters have learned to fear their displeasure. The first word you hear from them is fault-finding with the waiter on account of what is brought to them. Then the waiter is *ordered* to take the objectiona-

ble thing right back and bring something better. The command is often given in such a tone that it makes my blood boil. If the waiter is a *colored* man, he does not seem to mind it very much. Sometimes he bows very low, and begs pardon. At many of our hotels, however, they use American women instead of colored men. I say *American women*, because I have felt, a good many times, as if the great traveling public need to be reminded that not only do the *voters* in this *land of liberty* merit a certain degree of respect, but it seems to me that the women of our land, especially intelligent, ladylike women, also deserve a kind of respect that they do not always receive—especially if they happen to be waiters in a hotel. Well, at this crowded table sat one of these individuals I have been trying to describe. A whole tableful of teachers and bee-keepers were waiting to be served. There were not waiters enough in the establishment. Every one could see that. The waiters at the Hudson House are all women. So far as I could see, they were intelligent and ladylike women. They were dressed neatly, and behaved themselves, for all I could see, as well as the ladylike schoolma'ams. Some of them, doubtless, lacked education, but they were doing their level best. When I took my place at the table, this man of wealth and authority (I simply guessed he was) was being served. The overworked young woman had been helping us to our food for a good hour, about as fast as it is possible for even an expert to move. As she gave this individual his coffee, she hurriedly passed him the sugar-bowl, containing snowy lumps of loaf sugar. The bowl was only about a quarter full; but as it contained a good dozen or more cubes of sugar, there was ample for all his needs, and for all those near him. His lordship, however, evidently was not in the habit of having things that way.

"Here!" said he, in a lordly way, as if speaking to a disobedient child, "take this sugar-bowl and fill it up."

Her hands were filled with different articles of food for others at the table. Her face colored up at the rude and uncalled-for command, but only for a moment. She set her heavy load down, took the sugar-bowl to a table at some distance, filled it heaping full, and put it down near him. Slowly her face resumed its wonted pleasant look, and she soon apparently forgot the blow. I say *blow*, for it *was* a blow. My fingers fairly itched to get hold of that piece of lath which I used when I made old Charlie do his duty. I suppose it is wicked; but every time I think of it, it seems as if I should like to give a good sum of money for the privilege of making that man smart for his needless cruelty. I know, dear friends, that it would not have mended matters at all. I know that it is not by *might* nor by *power* that these brutal men are to be made humble and kind. It can be done *only* by the *spirit* of Christ Jesus. And, oh how I do pray that I may hunger *more* after that spirit, especially if it is ever my lot to deal or plead with such as he! If *anybody* has learned that a *blow for a blow* is not the way to make men better, *I* am surely that one. As I was late at the table there was no particular need of hurrying *my* meal; for by the time I was through, nearly every one else was through also. Not only men were waiting at the entrance of the dining-room, but many lady teachers were also waiting; great numbers of schoolma'ams, fresh from their charges, and perhaps from country schools. May God bless the teachers of our rural districts! Well, this waiter I have just been speaking of, noticed, as soon as I did, four pleasant-looking women waiting for a place. They had, perhaps, waited longer, as they perhaps preferred to sit together where they could chat and feel a little more at home. Pretty soon four men got up, right across the table from me, and in a twinkling my heroine (I call her so because I can not think of any better word, and because she met the rude speech from that overbearing man in such a *heroic* way), with a pretty feminine wave of the hand, motioned these young teachers to come quickly before somebody else crowded in. They caught her invitation, and came quickly.

And now I want to tell you of something that did my heart good. Writers of love-stories have sometimes tried to tell you of the power of a woman's smile. None of them yet, however, have ever done it half justice, to my notion. A woman's smile may *start* a man heavenward, and keep him *going* until he gets there. Wait a little. I wish to mend my statement. A woman's smile may start a *woman* heavenward, and keep *her* going until she gets there. As these teachers came up, each one of them gave this patient, hard-worked *sister* one of the sweetest smiles I ever saw in my life; and I inwardly thanked God to see them do it. I thanked God that it was given to one of *their own sex*, and not to one of the other sex, as the dime novels would invariably have it. And, oh I do rejoice to think that the day is coming when *women* will try harder to encourage *women!* when they will try harder to use the gifts that God has given them, to make *other* women in humbler stations feel that they recognize them as *sisters*. I thought this waiter seemed a little bit surprised to get these smiles and thanks; but, oh how they did transform her! She was a pleasant-looking, handsome girl before; but now she was *beautiful*. I gladly excused her from waiting on me while she went here and there giving these four teachers the very best dinner the house afforded. And they did not forget her while she waited on them. They thanked her as each article was brought, and even chatted with her as if she were one of the band of teachers too. And, dear friends, who shall say that she who ministers to us, even in a great hotel, if you choose, and supplies us with our daily food, is one whit lower in station in life than the educated college graduate who teaches our children? I believe the great wide world is not so much in the habit *now* of looking down upon table-waiters as it used to be. We used to hear the words, "Only a waiter at a hotel;" but I have not heard it very much of late. And I have

oftentimes been pained to be obliged to feel that *women*, more than *men*, perhaps, were in the habit of looking down upon the hotel girls and the hotel waiters. I have sometimes watched to see some of our fine well-bred ladies look up to the waiting-girl and thank her, or give her a pleasant smile when she came into the dining-room. I know there are at least some among our leading spirits of the W. C. T. U. who are in the habit of doing this; but the number is far too few. Now, dear friends, both men and women—yes, both boys and girls—you who read these pages, will you not help me to bring about a reform in this direction? I know there is such a thing as making, occasionally, a foolish and ignorant girl feel "set up" because she is noticed. I know, too, there are *some* of the waiters who have put *themselves* away down in the scale of society; but, never mind, dear brother and sister; it will not hurt us, even if we do get hold of the wrong one occasionally.

Our pastor told a little story of a great general, who, after a battle, started out with a tin cup and pail of water. He said that, even if he were not a surgeon, he could give a wounded man a drink of cool water. Finally, as he was preparing to give some water to a poor fellow who belonged to the enemy, the man managed to muster up strength enough to pull out a revolver and try to shoot the general. He missed his aim, however, and the attending officer was going to make short work of him for his audacity in trying to shoot him who was offering him a drink.

"No, no!" said the general to the officer; "don't shoot him, but give him a drink of water." This illustrates the spirit we need. Don't mind ingratitude. Keep on giving the cups of cold water, even to those who have attempted to take your life; and a cup of cool water is oftentimes a pleasant word and look to the one who waits on you.

Perhaps some of you will say, "Why not give it to the *colored* brothers, or waiters, as well as to the American women?"

By all means, do so. I can tell you, however (as I have learned by experience), that you are quite likely to encourage them in begging for a quarter or even a dime. But, don't be troubled, even if they do, and don't give them the quarter or the dime either.

A day or two ago there came some variously shaped cards through the mails. They were to advertise one of our horticultural publications. Now, I hope the brother who has charge of the advertising department of this periodical will excuse me if I take him to task a little. The first one (on a "diamond" shaped card) reads, "If you want to get rich and wear *diamonds*, advertise in the —— ——." The next one (on a "*club*" shaped card) reads, "If you want to *beat* your rivals, and get on top, advertise in the —— ——." And the third one (on a "spades" card) reads, "If you would *bury* your competitors, advertise in the —— ——."

I presume the above was sent out for fun, as a piece of pleasantry, and may be I am doing wrong to find fault with it; but I am afraid there is too much truth in it. I am afraid there *are* boys and girls both, who crave riches and diamonds, that they may make a display over their less fortunate brothers. And I am afraid, too, that there are those in business who really wish to *beat* a competitor and "get on top," as the card expresses it. Now, dear friends, and I want to speak to the younger ones too, is it true that you want to get on top of your rivals? Where would they be? Down in the mud? And would you, that you might get a little higher, sink them *deeper* and *deeper?* Wouldn't *their* anguish disturb you at all? May God forbid that any such spirit should ever find a lodging-place in any *American*, either *man* or *woman*. And, finally, does any one wish to see his competitor *buried?* I sometimes get into a strife myself, and I am very anxious to come out ahead; but may the Lord help me that I may have enough of the Christ spirit in my heart—enough Christian sympathy, so I can never have *any* peace or pleasure while my rival is *suffering* because of misfortune, or even because he makes mistakes and blunders which I have been enabled to avoid. Oh let us hold fast to the words of the Master! Let us hang them about our necks. Let them take the place of the diamonds that wealth can give. And may we have no comfort nor enjoyment in exercising *dominion* or *authority* over those whom God has seen *fit* to place round about us.

TOBACCO COLUMN.

FROM THE OTHER SIDE OF THE FENCE.

FRIEND ROOT:—I admire your Tobacco Column; but our friend in a recent issue says he is glad there will be no tobacco smoke in heaven. Do you think tobacco smoke will keep us out? Our friend intimates he would not use it. Is there any thing in the ten commandments forbidding it? Our Savior said, "He that is without sin among you, let him cast the first stone." Finally, would it not be as well to show a little more charity, one with another, and not so much of the Pharisee's "God, I thank thee that I am not as other men are"?

S. R. AUSTIN.

Amityville, Long Island, Jan. 19, 1890.

Friend A., there have been several criticisms in regard to that one letter in the Tobacco Column you allude to. I felt a little sorry after it came out, that it was allowed to pass. Still, a good many people think it was none too severe. Suppose we put it this way: Tobacco smoke is exceedingly offensive to me; and when I am outdoors on the sidewalk, and somebody just ahead of me turns his head and puffs a great lot of foul smoke in such a way that I can hardly get out of it, I can not well help feeling indignant; and if others feel as I do, can we really blame them for longing for some place where, at least in the open air, we can have a little respite from such treatment? To such people, the hope, at least, of the joys of heaven will be in having perfect immunity from such smells or such treatment. Now, it may seem hard, and perhaps uncharitable, but I really can not believe that people who have so little regard for the feelings of others as to push

their offensive habits under our very noses will be tolerated in heaven. I know we all have our besetting sins. None of us are free from them; but after that besetting sin has been held up to us, and we still persist in annoying and persecuting our fellows, we can not be followers of Christ unless we repent and reform. Perhaps we have been guilty of showing a Pharisaical spirit, and we thank you for so kindly giving us a caution; and whether you use tobacco or not, my good brother, here is my hand in Christian fellowship and charity. I am glad to know that you admire the Tobacco Column as a whole.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

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For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 1, 1890.

When HE giveth quietness, who then can make trouble?—JOB 34:29.

WE have to-day 9404 subscribers.

A MISTAKE IN A NAME.

THE celery described in our last, under the name of Incomparable Crimson, was, by a blunder of A. I. Root, the New Rose; that is, I described the New Rose, and by mistake got the wrong name for it.

BEE-STINGS FOR RHEUMATISM—APIUM VIRUS.

WE are pleased to notice that the *Homeopathic Recorder* for November 15 copies four of the most positive testimonials that have appeared in our pages. I should be exceedingly glad to know with what confidence our medical brethren regard the reports we have been giving.

ON page 92 friend Morrison alludes to a letter sent us, describing candy for queen-cages, made by boiling the sugar and honey together. We can not find that any such letter ever reached us, or that we ever succeeded in combining sugar and honey in that way. We have written to friend M. to explain more fully, for we regard it as something quite important.

MORE ABOUT THE HONEY FROM PINE-TREES.

SEVERAL communications have been sent us, not only in regard to bees working on the pines of Virginia in the vicinity of Amherst and Danville, but reports are given of as high as 3000 lbs. from a single apiary, of the thickest, whitest, and best-flavored honey ever taken. Careful observers give it as their opinion that it is not an insect secretion at all. M. C. Wayland, M. D., Rochelle, Va., can give further particlars.

STRAWBERRIES IN JANUARY.

STRAWBERRIES have been for some days on the market in Cleveland, at 60 cents a qt. I am told that they came from Tennessee. The strawberries not only blossomed earlier than they were ever known to before, but they bore fruit that got ripe and is now in market. At the present writing, Jan. 27, we have had five days of fair wintry weather. At one time it was as cold as 5 degrees above zero; but today it is mild and muddy once more.

SPRAYING TO PREVENT THE CODLIN MOTH.

ON my way home from the Michigan convention I found that one of our Michigan bee-keepers has over 100 acres of apple-trees. They have used the spraying-machines with remarkable success. During the past season the apples were all sprayed three times. The wagon that drew the liquid worked a force-pump. The result was, 3000 barrels of apples, almost without scar or blemish, that sold for $4500 in the orchard. The New York firm that bought the apples furnished their own barrels.

THE ROCHESTER CONVENTION.

NEXT in importance to the meetings of the N. A. B. K. A. are those of the New York State Bee-keepers' Association. This association was founded by Moses Quinby, and embraces within its ranks a very large number of our most prominent bee-keepers, some of whom enjoy world-wide reputation. Their next meeting will be held in Rochester, at the court-house, Feb. 5, 6, 7. Owing to the absence of A. I. Root in Wisconsin at the same date, he can not be present; but Ernest expects to be on hand, if the grippe lets go of him sufficiently. Under the head of Conventions we give their programme in full.

THE GLASS SASH THAT DOES NOT NEED HANDLING.

THREE such sash are now over plant-beds, composed of strips of glass 2 inches wide and 18 inches long. The glass rests perfectly level. They kept the ground from freezing when it was 5 degrees above zero, and after a gentle rain last night the ground seems to be as thoroughly wetted as if no sash had been over it at all. During very severe weather, straw mats or wooden shutters can be placed over it as well as over common sash. We shall at once have more of them made and put in use. Perhaps I should add, that the bed is right over a single steam-pipe that runs under ground to our dwelling-house.

WE are having a large number of new names, but there are some few discontinuances. Allow us to remind the latter, that there are two or three matters of great moment that are just now being discussed, and that they had better remain with us, and get the benefit of it. The importance of thick top-bars, and the doing away with burr-combs and honey-boards, can not be overestimated. Having frames suitable for out-apiaries, for moving and shipping, is bound to come up this year, and we hope a solution of the problem may be reached. An initial article is already at hand on the subject —see page 99. Reversible and non-reversible extractors have been and are to be discussed this year.

RAISING PLANTS FOR HONEY ALONE.

A LETTER is just at hand from a friend who wants enough Chapman honey-plants, figwort, and spider-plant to plant an acre of each; and he was feeling very badly at the prospect of not being able to find enough figwort to plant an acre. Of course, we told him that neither he nor anybody else wanted to do

any thing of the kind. The subject came up at the recent Michigan Convention, and I asked Prof. Cook whether, after the recent experiments made by the Agricultural College, of raising honey-plants by the acre, he would advise planting for honey alone. He replied at once that he would not. Now, friends, please do not waste any more money in this direction. If you want to raise honey-plants for your garden, a five-cent package is about all you need of any of them—at least, that is my opinion after having wasted a good deal of money in this direction. If the plant is also useful for some other purpose, that alters the case entirely.

WIRE STAPLES FOR FASTENING FRAMES AT FIXED DISTANCES.

The article and illustration on page 99 reminds me that, something like twenty years ago, all of the Langstroth hives made at the factory in Cleveland had wire staples in the frames, to keep them from getting too close together or to the ends or sides of the hive. We regarded this arrangement at the time as a wonderful invention; but, strange to tell, almost every bee-keeper, myself among the number, in a very short time went all over the hives, pulled out the staples, and threw them away. Our objection to them was, that they caught on the ends of the frame or sides of the hive when putting them in place and taking them out, causing bumps that irritated our hybrids, and set them to stinging when they might not have stung had it not been for the wire staples. Ernest suggests, however, at *that* time there were but few or no out-apiaries. This may make a difference, but I think it well to remind the boys of what their fathers did before some of them *were born*.

ANOTHER OF THE WORLD'S BENEFACTORS CALLED.

MR. E. N. ROOT, brother of our proof-reader, "W. P.," who so kindly took me around the city of New York when I visited Peter Henderson, gives us the sad intelligence of the death of the great florist and market-gardener. We give it in his own words, as follows:

Peter Henderson died of pneumonia to-day. May be A. I. R. would like to know it. He was 66. I saw him a few days ago, a big, kindly man, and he seemed to have strength to live 20 years yet. So they go!
New York, Jan. 17. E. N. R.

Perhaps no other one man who ever lived did more to make cultivating the soil popular than did Peter Henderson. His labor was not by any means given solely to building up the great business that takes his name, but it was out of a genuine love for his fellow-men. His books, "Gardening for Profit," "Gardening for Pleasure," etc., are written in such a happy, pleasant, good-natured style, that almost everybody becomes captivated by reading them; and thousands have, through his teachings, not only made tilling the soil profitable, but they have also found health, strength, and happiness, when doctors and medicines had proven to be utter failures. America can justly feel proud of the work he has done, and the whole world has doubtless been made better and happier because he lived and labored for us. Peace to his ashes.

LA GRIPPE.

THIS has taken serious hold of the friends in the office of the *American Bee Journal*. In the issue for Jan. 18, the following paragraph shows that the malady got a good "grip" on friend Newman and his office-helpers; but somehow or other the *Journal* comes out on time as usual, although its workers have been placed at a great disadvantage.

For several hours to-day the *Bee Journal* office was entirely deserted, and the door locked—one after another left his post of duty, being unable to longer keep a perpendicular attitude. But we are hopeful that the worst is now passed, and that all will be at their post of duty again soon.

A letter from our correspondent, G. M. Doolittle, informs us that he has been gradually coming down to being confined to the house, for six weeks, on account of influenza and a catarrhal affection. Bro. Doolittle says he was three days in writing his usual article which appears in this issue, on the subject of wintering. The grippe has not thus far made a very serious inroad in our office, and we are in hopes that we may escape it. A number of our employes in the manufacturing and packing departments, however, have not been so fortunate.

P. S.—Shortly after Ernest dictated the above, he was taken suddenly, while in the office. As nearly as I can make out, the "grim giant" took his first "grip" on him by the back of the neck. It soon doubled him up over the steam-pipes, and in an hour or two more he was at home in bed. During all his early years his dread malady was earache; but when I went over to see him, he said that, if he had the choice, he would take earache. After suffering keenly about 24 hours he sent for the family physician. You know the Root family do not believe in sending for physicians for every trifling malady; but I wish to bear record, that the doctor gave him relief almost immediately; and, by the way, with the large experience most of our physicians have had in its treatment, I think they ought to be able now to say just what should or should not be done. Your old friend A. I. R. has not had a touch of it yet; but if it comes, he proposes to send for the doctor, and do exactly as that doctor says.

SPECIAL NOTICES.

With the view of determining the established price of Japanese buckwheat, I would ask all those having it for sale to say how much they have, and how much they will take for it. We may not be able to purchase, as we are already pretty heavily stocked; but when we know how much there is, we can advise better what price is best to put on it. By consulting the seed catalogues you will see they have fixed it at from $1.50 to $2.00 per bushel, *retail*.

REMINGTON TYPE-WRITER FOR SALE.

For the sake of uniformity in our office we have adopted the Remington No. 2 type-writer, and consequently have a No. 1 of that make for sale. It has been in use here for a number of years, and does very good work. It prints capitals only, 70 letters to the line. It has a hinged metallic cover. Specimens of the work done on it will be sent on application. We offer it for $30.00, packed ready for shipment. This includes a nice stand with hinged leaf, one drawer. It has figures, points, etc.

SECOND HAND FOUNDATION-MILLS.

We have the following second-hand foundation-machines to offer. They are not, of course, as good as new machines; but for those who make their own foundation, they will answer nicely.

One 10-inch foundation-mill at Mt. Vernon, Iowa; has been used some, but is in good condition. Will sell for $15.00.

One 6 inch foundation-mill here. This is one of the original mills made by Mr. Washburn, and is in good condition. It has a heavy wall, and is better adapted to making brood foundation than any other grade. Will sell for $9.00.

GRAND RAPIDS LETTUCE-SEED WANTED.

Tell us how much you have, and what you will take for it.

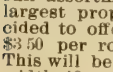
TIN COVERS, 5 CTS. PER HIVE EXTRA.

Owing to the advance in price of tin plate, and also an advance in the cost of pine lumber, we can not agree to furnish tin on the covers of Simplicity or Dovetailed hives at the regular price, instead of sending a clear board for cover, as we have sometimes done. But for 5 cts. extra for each cover, we will include a sheet of tin. The following paragraph is inserted in our catalogue, page 19, just before the list of 10-crates.

There is no tin on the covers in ten crates No. 1, 2, 3, 4, *and* 5. *Ten crates No.* 10, 20, 30, 40, *and* 50 *are just the same except that they have tin on all the covers, and the price is* 5c. *extra each cover, or* $4.75 *for No.* 10, $5.50 *for No.* 20, $6 *for No.* 30, $7 *each for Nos.* 40 & 50.

THICK TOP-BAR FRAMES.

A number of readers have asked if these frames can be used in our regular hives without lowering the rabbet to make room for the extra thickness of the top-bar. To be sure, they can. The end of the top bar is rabbeted out thus: This forms a shoulder on to which the end-bar is nailed, and also reduces the thickness of the projecting ends to the regular thickness, ⅜ of an inch.



JOB LOT OF WIRE CLOTH.

We call the attention of those interested, to our list of green and black wire cloth in our advertising columns. The list has not been published since last May. Within the past few days we have added over a ton more to the lot, so that we now have a full assortment of widths. As we have by far the largest proportion of 26-inch width, we have decided to offer this in full rolls of 216⅔ sq. feet, at $3 50 per roll, instead of $3.80, the regular price. This will be an inducement for you to take this width, if you can use it as well as any other.

HENDERSON'S BUSH LIMA BEAN.

There seems to be quite a division of opinion in regard to the value of this for a garden vegetable; but altogether I think it will be planted quite extensively, notwithstanding the price asked by nearly all the seedsmen; namely, $1.50 per quart. You will notice, also, there is a difference of opinion among the seedsmen. Our friend Maule styles it the greatest achievement of the century, in gardening. Our price, postpaid, is $1.15 per quart; but although we have several bushels it may be well to order soon, if you want them at the above price.

WORLD TYPE-WRITERS AT THE OLD PRICE.

Since the World type-writer was taken by the present management, and the price advanced 25 per cent, and the exclusive sale given to agents, we have not sold very many. Desiring to close out the few we have on hand, we offer them at the old price; namely, $8.00 for single case, or those writing all capitals, or $12 for double case, or those writing both capitals and small letters. As we have only a few on hand, and as we shall not be able to get any more by offering at above prices, you must be prompt in ordering if you would secure one.

MORRISON'S CANDY FOR QUEEN-CAGES.

Just as we go to press we get the following from friend Morrison in regard to the queen-cage candy mentioned on page 110. As it seems to be something of much value, we give it a place here. It will also prove equally valuable for bee-candy for winter feeding.

To make candy for queen-cages, I take the best extracted honey I can get (I have usually used apple-blossom) to our confectioner, and tell him to make it up into "cream candy" by boiling with sugar, using not a particle of glucose or water, and to be particular to avoid the least scorching in the work. If the candy should be too stiff, a little honey can be kneaded into it; if too thin, work in a little pulverized sugar. I can provision cages with this candy now for all the coming summer's use; and in the cages so prepared now, I can successfully send queens on journeys of 14 to 20 days, next September. I do not think it will be well for novices to attempt to make it, but rather to give these directions to an experienced manufacturer, and pay him for what he has taken many days to learn. Before putting the candy into my cages I pour into the space boiling wax, and immediately pour it out again, leaving the wood nicely covered. I have made my candy as above for three years past. S. W. MORRISON.

Oxford, Pa., Jan. 26.

NOVELTIES TESTED BY US IN 1889, AND PRONOUNCED WORTHY OF A PLACE IN OUR 1890 CATALOGUE.

We have added to our catalogue of seeds for 1890 the following vegetables as worthy of a place:

Henderson's New Bush Lima Bean.
Fottler's Brunswick Cabbage.
New Rose Celery.
Emerald Gem Melon.
White Victoria Onion.
Early Puritan Potato.
Early Sugar Pumpkin.
Chinese Rose Winter Radish.
Giant Summer Crookneck Squash.
Ignotum Tomato.
Lorilland Tomato.
Peach Tomato.

These were all described in our condensed catalogue, given in our last issue, except the following, which we describe here:

Emerald Gem Melon.—This is a small one, say from 1½ to 2 lbs. The skin is of a deep emerald green, and the flesh is of a salmon color—very delicious. My way is to eat it with a spoon, scraping the melon clear down to the rind. Of course, they want to be well ripened. I believe I should call it the most delicious of all muskmelons. Price 10c per oz.; $1.50 per pound.

White Victoria Onion.—In my description in our last, I omitted to say that this onion, besides being valuable for bunch onions, when given room and proper culture grows to an immense size. Single specimens last season reached the enormous size of 4 pounds. One-fourth ounce, 20c; oz., 65c; lb. $8.00.

Giant Summer Crookneck Squash.—This squash is as early as the ordinary crooknecks, and in every way equal; but are of such size that one squash will make a dinner, even when soft and tender; and one good thrifty plant will almost supply a family. Ounce, 15c; pound, $1.75.

Peach Tomato.—These are quite early, look nice (can hardly be told from peaches), and sell well when put into new quart strawberry-boxes. We sold them last season at 5 cts. per quart. They *never rot*, and in quality are excelled by none. Small size is their only fault. Oz. 25c; lb. $3.00.

Of course, the above are also all sold in 5c pkgs.

BEES. **South Florida.** QUEENS.

Eight years' experience. I am better prepared than ever before to fill orders promptly, and guarantee satisfaction and safe arrival. Tested Italian queens, $1.50; untested, 75c, or $8.00 per dozen. I make a specialty of shipping in time for Northern fruit-bloom, four-frame (L. and S. wired) nuclei, full of bees and hatching brood, with queen, at $4.00. Ready to mail or ship, as climate permits.
3tfdb LUTHER W. GRAY, Orlando, Fla.
☞In responding to this advertisement mention GLEANINGS.

QUEENS! EARLY! QUEENS!

Italian queens promptly shipped after April 1st.

	April 1 to June 1.	After June 1.
Tested queens	$2 00	$1 75
Untested	1 00	90
Three Untested	2 75	2 60

Two-frame Nucleus with Untested Queens after April 1st, $2.50. We use the Simp. frame and guarantee safe arrival, etc. Circulars free. Make money orders payable at Clifton. Address 3d
COLWICK & COLWICK, Norse, Bosque Co., Texas.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—*Bottom For Cash.* See Exchange Column. H. L. GRAHAM,
3 4d LETTS, LOUISA CO., IOWA.

ALSIKE CLOVER.

The time for sowing alsike seed is nearing. It is usually sown in the latter part of February and during March. We have a large stock of very nice seed, which we offer as follows: 18 cts. per lb.; by mail, 9 cts. extra; $2.00 per peck; $3.90 per ½ bushel; $7.50 per bushel. In lots of 5 bushels or more, $7.00 per bushel. Bags are included in every case.

A. I. ROOT, Medina, O.

$1.50 REVERSIBLE 8-FRAME LANGSTROTH HIVE.

J. B. WILCOX, - - MANISTEE, MICH.

Wants or Exchange Department.

□This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth $1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. □For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

WANTED.—To exchange a Winchester rifle, repeater, shoots 22 long; shoots 23 times, for a second-hand foot-power Barnes saw, for hive-making. J. W. CROSKEY,
Layland, Coshocton Co., O.

WANTED.—To correspond with some one who would like to spend a season in a Colorado apiary. D. L. TRACY,
3d Alsike Apiary, Longmont, Boulder Co., Colo.

WANTED.—To exchange for land or stock merchandise, a first-class apiary, 175 colonies. No better location. Crop, past season, 18,000 lbs. Bees need not be moved. Every thing complete, ready for business. Found.-machines, 4-horse-power, etc. Good trade direct with consumers. Give particulars for particulars. H. L. GRAHAM,
3-45t Letts, Louisa Co., Ia.

WANTED —To exchange for comb or strained honey of good quality, one feed-grinder worth $25 00. Can be operated by an ordinary wind-mill, and warranted to do good work. Address
AMERICAN CARP CULTURE, Alliance, O.

WANTED.—To exchange pedigreed Poland China pigs, for Italian bees, to be delivered in the spring. N. A. KNAPP,
3d Rochester, Lorain Co., O.

WANTED.—Situation with some supply-dealer, apiarist, or honey-merchant, by an experienced apiarist. J. B. HENDERSON,
3d Roney's Point, Ohio Co., W. Va.

WANTED.—Situation to take charge or work in an apiary in either of the following States: Tennessee, Virginia, Arkansas, Texas, Nebraska, Missouri. Understand the business in all its branches; also farming, or can do any kind of honorable work. Best of references given; 18 years with bees and farming. Address Box 25, Gallupville, N. Y. 3d

WANTED.—To exchange 1000 new bee-hives, all complete, for bees, or will furnish hives, sections, and foundation for share of the honey, to parties living in Maryland, Virginia, or West Virginia. Write for particulars to
3tfdb F. DANZENBAKER,
1301 K. St., N. W., Washington, D. C.

WANTED.—To exchange at a bargain, 40 or 80 acres of timber land, for bees.
3d J. L. COLE, Carlton Center, Barry Co., Mich.

WANTED.—Situation. Over ten years' experience with bees; also practical caponizer. Correspondence solicited. R. R. CUYLER,
3-d Rapidan, Culpeper Co , Va.

WANTED.—To exchange a 3-horse-power engine and boiler, for type-writer, or offers.
3 d W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange raspberry and strawberry plants, standard varieties, for extracted honey. 3d L. S. ROGERS, Bowling Green, O.

WANTED.—To exchange bees in S. hive, or by the pound, for amateur photograph outfit, turning-lathe, blacksmith's drill, gent's saddle, or offers.
F. W. STEVENS,
3-4d Moore's Hill, Dearborn Co., Ind.

WANTED.—To exchange a new Daisy incubator, capacity 300 eggs, for fdn. mill, sections, or offers. WM. J. VALENTINE,
3-d Hagerstown, Washington Co., Md.

WANTED.—To exchange bees for supplies; also to rent or let an apiary, location good. If not let by March 1, I want a man for 1890.
A. E. WOODWARD,
3-4d Grooms Corners, Sar. Co., N. Y.

WANTED.—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with 5½x9½-in. chase.
3-11d S. A. SHUCK, Liverpool, Ills.

WANTED.—Bee-help for 1890. One man with experience, and two desiring to learn the practical part of apiculture. Must be strictly temperate. State wages expected, and other particulars. 3 6db S. I. FREEBORN, Ithaca, Wis.

WANTED.—To exchange for honey, photograph outfit, musical instruments, guns, etc , one 240-egg self-regulating, one 50-egg non-regulating incubator; one Monarch brooder, 200 chicks; one brooder, 50 chicks. A bargain for some one.
3d J. T. FLETCHER, Clarion, Pa.

WANTED.—To exchange Gregg, Souhegan, Early Ohio, and Tyler raspberry-plants, Warfield, Bubach, Jessie, May King, and Hoffman strawberry-plants, A No. 1 plants, and true to name, for sections, honey, beeswax, or pear-trees. Satisfaction guaranteed. E. T. FLANAGAN, Belleville, Ills.
3-5-7-d

WANTED.—To exchange a few trios of White Wyandottes and Plymouth Rocks, for foundation and 1-lb. sections. These are very fine stock.
2tfdb T. G. ASHMEAD, Williamson, N. Y.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars. CHAS. DADANT & SON,
18tfdb Hamilton, Hancock Co., Ill.

WANTED.—To exchange all kinds of wall paper, for honey. J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation.
11fdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange young Italian queens for 1-lb. sections or foundation-mill. Queens ready to ship now, by first mail. I guarantee satisfaction. J. W. TAYLOR,
2 3-4 Ozan, Hempstead Co., Ark.

WANTED.—By an experienced apiarist, a large apiary on shares; or would purchase, if little cash is required down. Address G., Box 226.
Williamson, N. Y.

WANTED.—To correspond with parties having potatoes, apples, onions, cabbage, or honey, to sell or consign. All letters promptly answered.
EARLE CLICKENGER,
2-3d No. 119 South Fourth St., Columbus, O.

WANTED! ! ! I want a man to take charge of an apiary. F. D. LACY,
2-5db Nirvana, Lake Co., Mich.

WANTED.—Situation with bee-man, by a young man 25 years of age, four years' experience.
2d H. DEXTER, Preston, Grant Co., Wis.

WANTED.—To exchange Turner red-raspberry plants for strawberry-plants, peach-trees, or bee-supplies. EARLE CLICKENGER,
2 3d No. 119 South Fourth St., Columbus, O.

WANTED.—To exchange 100 cherry-trees for 20 warranted queens or 4000 dovetailed sections.
2 3d JAS. HALLENBECK,
Altamont, Albany Co., N. Y.

WANTED.—To exchange choice Italian queens, Stanley Automatic Honey-Extractor, large size (new), Heddon hives, or full colonies of Italian bees, for a combined Barnes foot-power saw.
2tfdb E. D. KEENEY,
Arcade, Wyoming Co., N. Y.

Our 1890 Catalogue is BETTER THAN EVER. A complete Garden Guide, full of practical ideas about all kinds of

SEEDS

Vegetables, Flowers, Bulbs, etc., necessary for the garden is mailed **FREE** to all who apply **if they mention this paper.** With **prices lower,** quality higher, better facilities for filling orders promptly, generous treatment and over **40 years** Seed Farm experience enables us to please you.
A. W. LIVINGSTON'S SONS, Box 273, **COLUMBUS, O.**

☞In responding to this advertisement mention GLEANINGS.

SOLD IN 1889, AND ready to sell in 1890, all kinds of Bee-keepers' Supplies, Bees, Queens, etc. Send your address and receive our circular. **JNO. NEBEL & SON,**
3tfdb **High Hill, Mo.**
☞In responding to this advertisement mention GLEANINGS.

DON'T FAIL TO TRY THE "MIAMI,"

THE BEST LATE STRAWBERRY ON EARTH!

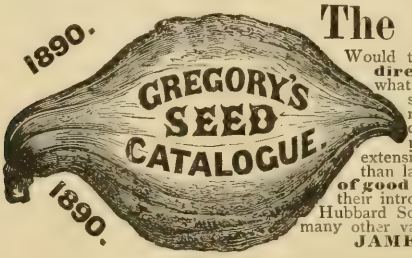
FINE LITHOGRAPH.
HONEST TESTIMONIALS.

ALSO OTHER VALUABLE VARIETIES,
AND A
GENERAL NURSERY STOCK

For sale. Send address for prices, description, etc.

J. D. KRUSCHKE,
BOX 824, PIQUA, O. 3 4d
☞In responding to this advertisement mention GLEANINGS.

SEEDS. Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. F. B. MILLS, Thorn Hill, N. Y.



The Public Want Their seed fresh and true.

Would they not be most likely to obtain such by buying **directly from the grower?** I can buy seed at half what it costs me to raise it, but could not sleep sound should I warrant seed of this class. For the same reason I make special effort to procure seed stock directly from their originators. You will find in my new seed catalogue for 1890 (sent **free**) the usual extensive collection (with the prices of some kinds lower than last season) **and the really new vegetables of good promise.** You should be able to get from me, their introducer, good seed of Cory Corn, Miller Melon, Hubbard Squash, All Seasons and Deep Head Cabbages and many other valuable vegetables, which I have introduced.
JAMES J. H. GREGORY, Marblehead, Mass.
☞In responding to this advertisement mention GLEANINGS.

RERUM COGNOSCERE CAUSAS,

TO know the Causes of Things, is the key to Success in any industry. If you wish to succeed in the **Bee Business,** you must read and become acquainted with the most Successful Methods of Bee-Management and Honey-Production.

LANGSTROTH'S WORK,
REVISED BY DADANT,

Contains the result of **practical experience** with Bees. It gives the Physiology of the Bee, with numerous **Quotations** from the latest Scientific Writers, the Description of the **best Hives,** Directions for the Proper Management and Handling of Bees; the most **Practical Methods** of **Queen-Rearing, Swarming** (Natural and Artificial), with controlling methods; instructions on Establishing Apiaries, Transferring, Shipping, Mailing, Feeding, Wintering; the best methods of producing **Comb and Extracted Honey,** the Handling and Harvesting of Honey, the Making of Comb Foundation, etc., etc.

The instructions for the **Rendering of Beeswax** are alone worth the price of the Book, to many bee-keepers who waste a part of their wax in rendering it.

This book, "the most complete ever published," is shortly to be published in the French, Italian, and German Languages, by Practical European Apiarists. It is highly recommended by all publishers of Bee-Literature in the Old World as well as in the New.

Cloth Binding. 550 Pages, 199 Engravings, 19 Full-Page Plates. Gilt front and back. This book is an Ornament to any Library.

Price: By Express, **$1.85.** By mail, prepaid, **$2.00.** Special prices to Dealers who wish to advertise it in their circulars.

☞We also offer for Sale, **20,000 Lbs. of Honey,** of our crop of 1889; **25 Tons of Comb Foundation,** Smokers, Bee-Veils of Imported Material, etc. Send for Circular. Address
3tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.
☞In responding to this advertisement mention GLEANINGS.

SEEDS GARDEN, FLOWER & FIELD.
POTATOES, FRUIT TREES, PLANTS and VINES, *all the best kinds.* **THE NEW CURRANT "Crandall,"** *a fruit specialty.* Our **Free Catalogue** is a **Novelty** all should have, as it gives **Accurate Descriptions and Fair Prices,** instead of *bombast* and *exaggeration*—too common. Send your address on a postal for it *at once.* **FRANK FORD & SON, Ravenna, Ohio.**
☞In responding to this advertisement mention GLEANINGS.

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS.*

Southern Bee-Keepers, Send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.
☞In responding to this advertisement mention GLEANINGS.

Sugar Grove Thoroughbred-Poultry Farm.

60 Ply. Rocks, Wyandottes, Langshans, Mottled Javas, and White Ply. Rock. Cockerels, at $1.50 Each.
A Few Ply. Rock and Wyandotte Pullets, 75c Each. Satisfaction Guaranteed.

W. H. SWIGART, - Lee Co., - DIXON, ILL.
☞In responding to this advertisement mention GLEANINGS.

SEND $1.25 TO THOMAS GEDYE, Kangley, Ill., for a sample of his *All-Metal Separator,* or $11.50 per 1000, and be convinced that they are the cheapest and best out. At present I have them for combined crates and T supers only. Supply-dealers, please send for prices on large quantities, cut or uncut. 1tfdb

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FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks. Address N. A. KNAPP,
4tfdb **Rochester, Lorain Co., Ohio.**

FIRST-CLASS BROOD-FRAMES cut to order, *any size.* Per 100, $1.00; 500, $4 75; 1000, $9.00. C. W. VANHOUTEN, Smithfield, Ful. Co., Ill.

PEACH TREES Wholesale and Retail. Send for prices.
4-5d E. S. JOHNSTON, Stockley, Delaware.

For Sale.—For cash, cheap, or trade for a good piece of land, from 50 to 200 colonies of Italian bees in the Quinby hive, and a few in Root's Simplicity. Too much work, with other business.
2tfdb G. HARSEIM, Secor, Woodford Co., Ills.

BEE-KEEPERS' SUPPLIES.

We are prepared to furnish bee-keepers with supplies promptly, and at greatly reduced rates. Estimates gladly furnished, and correspondence solicited. Our goods are unexcelled in quality and workmanship.

Italian Queens and Bees at a very low price. Send for large illustrated price list, free. Alley's Queen and Drone Trap and Swarm Hiver always on hand. **A. F. STAUFFER & CO.,**
20tfd **Sterling, Ill.**
☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, $2.00; after June 1, $1.50. Untested queens, $1.00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES & CO.,
4-9db **Bryant Station, Maury Co., Tenn.**
☞In responding to this advertisement mention GLEANINGS.

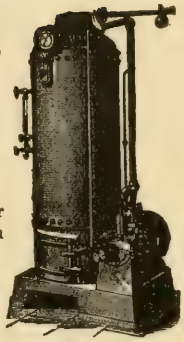
Carniolan Queens and Bees a Specialty.

The co-partnership of Andrews & Lockhart is now closed, and the senior partner (who has bred those queens and bees for six years) will breed queens and bees from imported mothers, in the season of 1890, and will sell, the 1st of June, untested at $1.00; one-half dozen at $5.00; one dozen at $9.00. The tested, the 15th of June, $2.00; one-half dozen, 15th of June, $10.00. All queens above the untested will be put into one class, and sold as tested at $2 00, of next year's breeding. I expect to have queens of last year's breeding, which I will sell on the 10th of May, tested, $2.50; one-half dozen, $12.00. Send for circular.
1-6db JOHN ANDREWS,
Pattens Mills, Wash. Co., N. Y.
☞In responding to this advertisement mention GLEANINGS.

Bees Bees Bees & Poultry Poultry Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at $1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.
THE D. A. JONES CO., BEETON, ONTARIO, CAN.

Engines & Boilers.



Complete Outfit, or Engine Alone.

The Best and Most Substantial Engine Made.

Fully guaranteed. Send for circular and price list. Mention this paper.

MEDINA ENGINE CO.,
20tfdb **Medina, Ohio.**

LOOK HERE!

Bee-Keepers and Fruit-Growers, before you order your supplies for 1890, send for my catalogue and price list of **Bee-Keepers' Supplies** and **Strawberry Plants.** Twenty-five approved varieties grown for this season's trade. Prices reasonable. **Bees** and **Queens** for sale; $1.00 queens a specialty. Address **F. W. LAMM,**
24-23db (Box 106.) **Somerville, Butler Co., Ohio.**
☞In responding to this advertisement mention GLEANINGS.

Light Brahmas and Laced Wyandottes.

Standard, high-scoring males, $1.50 and upward. Eggs from show birds $1.50 per clutch, after the 7th of April. SIGEL F. GROSS, Atwood Ill. 3-4d

FOR SALE!

One of the best located apiaries in Iowa, **150 Colonies,** in Langstroth hives. Handsome two-story frame residence. Twenty acres land. All necessary out-buildings. Also fine flock White Wyandottes. Two cows, nice span driving horses. Never a failure of honey. White clover, basswood, golden-rod, buckwheat, etc. House nearly new, nicely decorated paper, a very pleasant home. Price **$2500.** **C. A. SAYRE,**
23tfdb **Sargent, Floyd Co., Iowa.**
☞In responding to this advertisement mention GLEANINGS.

For Sale.—40 colonies of Italian and hybrid bees in Simp. hives, mostly on wired frames. All in good condition, with plenty of stores. No foul brood ever in our county. GUSTAVE GROSS,
2tfdb Greenville, Bond Co. Ills.

Eaton's Improved SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON, Bluffton, Ohio.
☞In responding to this advertisement mention GLEANINGS.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ILLUSTRATED.

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, - - Medina, O.

KIND WORDS FROM OUR CUSTOMERS.

I just opened GLEANINGS for Dec. 15. It is a "daisy" number. Those pictures would make almost anybody feel like going into the bee-business.
O'Quinn, Tex., Dec. 23. J. C. MELCHER.

LEADER SHEARS.

I like those Leader shears so well that I want my friends to have some like them. Please send me three pairs more. I. N. PEARSON.
Normandy, Tenn.

I received the 4 boxes yesterday. The hives are fine. I sold two of them before I got them together. I think I can sell several of them. I charge $4.00 for them complete. J. R. COUGILL.
McArthur, O., Dec. 19, 1889.

DOVETAILED HIVES BEST AND SIMPLEST.

The goods I ordered of you came all right. The Dovetailed hives are the simplest and best I ever saw. WILLIE DOUGLASS.
Lexington, Texas, Jan. 25.

GRAND RAPIDS LETTUCE-PLANTS.

Those lettuce-plants ordered about a month ago came to hand *very* promptly, and in the best of condition. Every plant grew, and many are now about 6 inches tall. S. F. HERMAN.
Tuscaloosa, Ala., Dec. 31.

OUR $12 00 SEWING-MACHINE AS GOOD AS A $50.00 MACHINE.

We received the machine last Monday in good order. We are pleased with it, and glad to speak of you as an honest Christian man. My neighbors were here to look at the machine. They think it is as good as a fifty-dollar machine.
Gehrton Sta., Pa., Jan. 23. DE FOREST TRUAX.

OUR CHRISTMAS NUMBER.

I drop you a few lines to thank you for those beautiful pictures of different apiaries, for there is a good lesson in every one of them, already explained in GLEANINGS. The December 15th issue is the best Christmas present I ever received; and those goods I ordered came all in good shape. Thanks. SETH NELSON.
Wistar, Pa., Jan. 1.

GLEANINGS AS AN ADVERTISING MEDIUM.

Mr. Root:—Please say to the friends, that I received more communications in answer to my ad't in GLEANINGS, Nov. 1, than I can reply to. S. W. White, of Missouri, has taken the position as assistant in Rattlesnake apiary; Thomas H. Mills, of Sarnia, Canada, will take charge of my apiary No. 2.
Cameron, Texas. E. Y. TERRAL,
Judge of Milam Co.

WHAT AN ARTIST THINKS OF OUR PICTURE GALLERY.

I desire by these few lines to extend to you my most hearty thanks for the Picture Gallery, as per supplement. I appreciate it very much indeed; first, because it not only suggests to us various ideas of bee-keepers, but it presents to us one of the first albums of apiaries, perhaps, published in the world, and not only so, but they are engravings of a high grade of excellence.
Reinersville, O., Dec. 23. J. A. GOLDEN, Artist.

BUSINESS AND RELIGION.

You seem to mix your religion in with your business. I like the mixture. Josh Billings said a man needed as much religion when he measured his onions as he did when he "hollered glory halleluyer!" I think he needs a little more. If there were a little religion mixed in all business transactions, it would be better for all parties concerned. I owe you a debt of gratitude for what I have learned from GLEANINGS and your A B C book. I am sorry I did not get hold of them years ago. I have a fine herd of cattle here; and if I succeed with the bees I shall have my old cotton plantation flowing with milk and honey, on a small scale. Bees gather honey very rapidly in the spring and early summer from white clover, poplar (or tulip) tree, and basswood. When these fail there is nothing for them to gather. T. N. BEDFORD.
Fayette, Miss., Dec. 30.

GLEANINGS GROWING BETTER; TOBACCO COLUMN.

I believe GLEANINGS is growing better from year to year, and from month to month, and it comes to us away here in the Rocky Mountains so regularly that we always know in just what mail to look for it. I read it with great interest, particularly Our Homes; and your Tobacco Column is doing a great deal of good. I hope no criticism of your course will dampen your ardor in that line. I verily believe that the remarks of Dr. Mason, at the International Convention, on hobby-riding, as reported by Ernest, resounded more to the glory of God than any tobacco-smoking ever indulged in by man. MRS. LAURA A. NEVINS.
Silver Cliff, Col., Dec 25, 1889.

TWO HONEY QUEENS IN A BENTON CAGE TO CALIFORNIA.

I received the two honey queens ordered from you Oct. 22d, in the midst of a very rainy spell. They were only 8 days in transit. One cage had one dead bee; the other, none that I could see. The queens are lively, but I had to wait till next day to introduce, on account of rain. I christened the queens "Medina" and "Alice." I caged Medina Oct. 23, on brood and honey, 24 hours after removing queen. Oct. 25 I released her. Returning in an hour I found her "balled," and took her out. Oct. 26 I caged her in another hive, immediately after removing queen; released her Nov. 1. She is doing well. I had less trouble with Alice. I caged her the 24th, as soon as the other queen was removed, and released her the 26th. She has quite a show of progeny now, and they have certainly stored some honey this month in recently vacated brood cells. The weather here is extremely wet.

I am specially pleased with the religious tone of GLEANINGS, and don't want to miss a single number. I want to encourage you to persevere, as the Lord may lead, in your warfare against tobacco.
Whittier, Cal., Dec. 24. ALLEN BARNETT.

KIND WORDS FROM A BROTHER IN TEXAS.

Brother Root:—I love to read the pieces you write, under the head of Myself and My Neighbors. It is about the first thing I read, when GLEANINGS comes in with such a bright smiling face. I should just about as soon do without my breakfast as to fail to get GLEANINGS. You may wonder why I call you "brother." It is because Christ, in his infinite love and mercy, has found me, a wanderer, and has been pleased to turn my steps heavenward. It has been about three months since I became a member of a church. I am now 40 years old. I have been afflicted a good deal, and have been near death's door several times, and it has always been a mystery to me why I was spared. But since I have become a Christian, and, as I hope and believe, a better man, it seems plainer why I was spared; and if I could be the happy means of inducing some other mortal to come to Christ, then I should have lived to some purpose. And you, Bro. Root, in your writings in GLEANINGS, have exerted an influence for good, not only in my case, but I hope in many others; and may God spare you and yours many long years, to cast bread, as it were, upon the waters, that may return after many days.
Crowley, Tex., Dec. 14. W. A. CARTMELL.

SOME KIND WORDS FROM AUSTRALIA.

IN a price list of apiarian goods published by Walters & Co., of Adelaide, Australia, we find the following in regard to our A B C book and GLEANINGS. The kind words are the more appreciated because they come unsolicited from our unknown friends in the southern part of the globe.

"As a text-book, the A B C of Bee Culture stands unrivaled, being a cyclopedia of 400 pages and 250 illustrations. It is arranged in alphabetical form, so that any subject it is desired to refer to may be quickly and readily found. This alone is a great recommenation."

Of GLEANINGS they say:

"GLEANINGS is one of the greatest helps in the apiary procurable, besides containing a lot of other useful matter on various home subjects. It is nicely printed on toned paper, and contains many illustrations."

Wants or Exchange Department.

WANTED.—To exchange 1000 new bee-hives, all complete, for bees, or will furnish hives, sections, and foundation, for share of the honey, to parties living in Maryland, Virginia, or West Virginia. Write for particulars to
F. DANZENBAKER,
1301 K. St., N. W., Washington, D. C.

WANTED.—To exchange for land or stock merchandise, a first-class apiary, 175 colonies. No better location. Crop, past season, 18,000 lbs. Bees need not be moved. Every thing complete, ready for business. Found.-machines, 4-horse-power, etc. Good trade direct with consumers. Give particulars for particulars. H. L. GRAHAM,
3-45t Letts, Louisa Co., Ia.

WANTED.—To exchange for comb or strained honey of good quality, one feed-grinder worth $25 00. Can be operated by an ordinary wind-mill, and warranted to do good work. Address
AMERICAN CARP CULTURE, Alliance, O.

WANTED.—To exchange bees in S. hive, or by the pound, for amateur photograph outfit, turning-lathe, blacksmith's drill, gent's saddle, or offers.
F. W. STEVENS,
3-4d Moore's Hill, Dearborn Co., Ind.

WANTED.—To exchange bees for supplies; also to rent or let an apiary, location good. If not let by March 1, I want a man for 1890.
A. E. WOODWARD,
3-4d Grooms Corners, Sar. Co., N. Y.

WANTED.—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with 5½x9½-in. chase.
3-11d S. A. SHUCK, Liverpool, Ills.

WANTED.—Bee-help for 1890. One man with experience, and two desiring to learn the practical part of apiculture. Must be strictly temperate. State wages expected, and other particulars. 3 6db S. I. FREEBORN, Ithaca, Wis.

WANTED.—To exchange Gregg, Souhegan, Early Ohio, and Tyler raspberry-plants, Warfield, Bubach, Jessie, May King, and Hoffman strawberry-plants, A No. 1 plants, and true to name, for sections, honey, beeswax, or pear-trees. Satisfaction guaranteed. E. T. FLANAGAN, Belleville, Ills.
3-5-7-d

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars. CHAS. DADANT & SON,
18tfdb Hamilton, Hancock Co., Ill.

WANTED.—To exchange all kinds of wall paper, for honey. J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation.
1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange young Italian queens for 1-lb. sections or foundation-mill. Queens ready to ship now, by first mail. I guarantee satisfaction. J. W. TAYLOR,
2-3-4 Ozan, Hempstead Co., Ark.

WANTED!!! I want a man to take charge of an apiary. F. D. LACY,
2-5db Nirvana, Lake Co., Mich.

WANTED.—To exchange 40 acres of good farming land, for bees; also other property.
A. P. DAY, Newaygo, Mich.

WANTED.—To exchange foundation, for beeswax. Sample on application.
Avery's Island Apiary, Avery, La.

WANTED.—Kansas land, 320 acres, first quality, improved, for a small place suitable for apiary or for other town property. Also books for bee-supplies. 4d Lock Box 545, Olathe, Kan.

WANTED.—To exchange a nice white bull-terrier pup, grapevines, blackberry-plants, asparagus-plants, and a lot of carpenter's tools, for S. or L. hives in flat, wired frames, foundation, or 3-frame nuclei. F. T. WEATHERVILLE,
4d Jonesville, N. Y.

WANTED.—To exchange from one to 1000 books, of new publication, for bees and apiarian fixtures. F. D. LACY, Nirvana, Lake Co., Mich. 4tfdb

WANTED.—I want a small-size baling-press, for which I will exchange folding paper boxes, Italian bees, hives, extractors, or job printing.
4-5d A. O. CRAWFORD, S. Weymouth, Mass.

WANTED.—To exchange nursery stock for shot-gun or lawn-mower. GEO. GOULD,
4-56d Villa Ridge, Pulaski Co., Ill.

WANTED.—Foot-power circular saw, Barnes complete preferred; must be cheap. F. H. SCOTT,
4d Gaylord, Otsego Co., Mich.

WANTED.—To exchange honey for L. Brahma or S. C. W. Leghorn hens. W. T. F. PETTY & SON,
4d Pittsfield, Pike Co., Ill.

WANTED.—Help. I wish to correspond with some young man who has had some experience in modern bee-keeping, but who does not know it all. A suitable person, who is temperate, industrious, and has a liking for bee-keeping, can find a good situation as a helper. C. H. DIBBERN,
4d Milan, Ill.

WANTED.—To exchange one Ply. Rock male and six female birds of thoroughbred stock—all in their second year—for comb foundation, Japanese buckwheat, or offer. F. GREINER, Naples, N. Y. 4d

WANTED.—To exchange Ply. Rock, Langshan, and Wyandotte cockerels *for* Wyandotte hens, *thoroughbred*. Correspondence solicited.
45d W. H. SWIGART, Dixon, Ill.

WANTED.—To exchange a house and lot in Clifton, Kan., worth $650, encumbered with $250 mortgage, for 50 colonies Italian bees, and $100 worth of bee-hive stuff, all to be delivered at Ottawa, Kan. For particulars write to
J. R. BARNHARD, Centropolis, Frank. Co., Kan.

WANTED.—Situation. A young married man of 26 years, without children, wishes a situation with a good Christian bee-man, to work with bees, and do light farm work. A supply-dealer who makes his own supplies preferred, as I have had 10 years' experience with wood-working machinery.
W. H. DICKINSON, Deep River, Conn.

WANTED.—To exchange $1 setting of eggs, from prize stock, your choice of 14 varieties, for bee-smoker. Bee-book wanted. List free.
OHIO POULTRY YARDS, Sherwood, O.

WANTED.—To exchange the best style of brood-frame on earth, for empty cards; also V-grooved sections at $2.50 per 1000, for empty cards.
4d J. B. MURRAY, Ada, O.

CARNIOLAN QUEENS,

BRED FROM AMBROZIC AND BENTON
Imported 1889 Queens.

Circular of Supplies and Queens. | **J. B. Kline's Apiary, Topeka, Kas.**

☞In responding to this advertisement mention GLEANINGS.

THE SECRETS OF SUCCESS

IN GROWING SMALL FRUITS,
And Catalogue of Varieties, New and Old. I offer bargains in Plant and Garden seed Collections.
4d I. A. WOOLL, ELSIE, MICH.
☞In responding to this advertisement mention GLEANINGS.

UNTESTED ITALIAN QUEENS AT $1, and 4-frame nuclei at $3.50, after May 1st. Send in orders now.
4-10db S. J. WAKEFIELD, Autreville, S. C.

REMOVED, from Coburg to RED OAK, IOWA, my entire factory for

BEE SUPPLIES. *Wholesale and Retail.* We have the largest steam-power shops in the West, exclusively used to make EVERYTHING needed in the Apiary, of practical construction and at the LOWEST PRICES. Italian bees, queens, 12 styles of Hives; Sections, Honey-Extractors, Bee-Smokers, Feeders, Comb Foundation, and everything used by bee-keepers, always on hand. 40-page Illustrated catalogue FREE to all. 4tfdb Address **E. KRETCHMER, Red Oak, Iowa.**

☞In responding to this advertisement mention GLEANINGS.

BURPEE'S SEEDS BEST ARE THE

it is possible to produce by constant, most critical care, and are **WARRANTED,—few equal and none better.** Handsomely illustrated **CATALOGUE,** with **colored plates painted from nature,** of **RARE NOVELTIES** of sterling merit, mailed **FREE** to any address. *W. ATLEE BURPEE & CO., Philadelphia, Pa.*

☞In responding to this advertisement mention GLEANINGS.

TILLINGHAST'S NEW

FLORAL ALBUM

Is not a seed catalogue but a magnificent volume containing 270 Elegantly Colored Plates, making the most Beautiful and Extensive Collectiou of Floral Lithographs ever published. The first copy cost over $2000.00. I will mail one copy for introduction on receipt of 50 cents.

ISAAC F. TILLINGHAST, La Plume, Pa.

☞In responding to this advertisement mention GLEANINGS.

ALSIKE.

Choice Seed, $5.50 Per Bush.

Silver Wyandotte and B. Leghorn eggs, 75c per 13, or $1.00 for 26. Stock unsurpassed.

C. M. GOODSPEED, Thorn Hill, N. Y.

☞In responding to this advertisement mention GLEANINGS.

BEES FOR SALE

COLONIES, NUCLEI, AND QUEENS, at living rates. Send for circular and price list to

C. C. VAUGHN & CO.,

4tfdb **Columbia, Tenn.**

☞In responding to this advertisement mention GLEANINGS.

MUST SELL!

50 Colonies Italian Bees at $5.00 each, f. o. b., in 8-frame L. hives, telescope caps. Most of the combs built on fdn. in wired frames. These bees were very heavy in stores in the fall. Reasons: Can keep only about 25 colonies here in the city, and my business will not allow starting out-apiaries. Ship in April or May. **W. E. YODER,**

4tfdb LEWISBURGH, UNION CO., PA.

☞In responding to this advertisement mention GLEANINGS.

JAPANESE BUCKWHEAT AT $1.20 PER BUSHEL. Eggs from pure-bred Partridge Cochins, and S.C. Brown Leghorns Strawberry-plants. 4-5d C. B. JACKSON, Eau Claire, Eau Claire Co., Wis.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete stock of Apiarian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db

R. B. LEAHY & CO., Higginsville, Mo.

☞In responding to this advertisement mention GLEANINGS.

SEEDS. Don't buy your seeds or plants till you see my FREE 1890 catalog. I offer something wonderful. Send for it. F. B. MILLS, Thorn Hill, N. Y.

Japanese Buckwheat, 60c Per Bush.

Alsike clover seed, $7.00 per bush. No. 1 one-piece sections, $3.00 per M. Extra nice foundation, thin, 45c per lb.; brood, 40c. Best bee-veil out, only 30c. All supplies cheap. Send for new list free.

22tfd **W. D. SOPER,**

Box 1473. Jackson, Mich.

☞In responding to this advertisement mention GLEANINGS.

$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with Tested Queen, or 5 for $25.00.

In Simplicity or L. 10-frame hives; 250 colonies to draw from. Address

4-9db JNO. A. THORNTON, LIMA, ADAMS CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

$1.50 REVERSIBLE 8-FRAME LANGSTROTH HIVE.

J. B. WILCOX, - - MANISTEE, MICH.

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the **best** Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3.50 per 1000.

☞ Parties wanting more should write for special prices. No. 2 sections, $2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

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MARKETING HONEY.

VALUABLE HINTS THAT EVERY BEE-KEEPER SHOULD READ, BY J. A. BUCHANAN.

IN your issue for Jan. 1 you have an article written by J. B. Colton. He wishes to know what is the most acceptable and economical package to use for retailing extracted honey, in large cities. If the honey is to be sold by city dealers, or even by the producer, the package must be charged to the account of the purchaser of the honey; and to make it "acceptable and economical," the package must be worth all it costs the purchaser, else he will soon see that he is buying something valueless. Mr. C. says he has succeeded pretty well with the 1½-lb. glass pail. If these pails are so constructed as to be air-tight they might do; but why not use Mason's pint, as these hold 1½ lbs., if you like this quantity; and as they are air-tight, the honey will not candy if put in them at nearly a boiling heat. This package, when bought in large lots by the bee-keeper, can be given to the purchaser of his honey at a reasonable price, and it is always worth as a fruit-jar what it has cost him. The use of tumblers, glass, or tin pails, for putting extracted honey on the market, will never do, unless strictly air-tight. In selling honey last fall I saw in the retail stores thousands of pounds of candied honey. From curiosity I often dropped in to see what the storekeepers had to say about the honey that had candied on their hands. Taking a jar or can of it in my hand I would say to the dealer, "What have you here?" Some would say that it was honey, but that it had candied; but the most of them would say, "I bought that stuff from a man who lives out in the country. He told me he had the bees, and raised his own honey; but from the appearance of it now, I think he raised most of it out of a sugar-barrel. What he brought in first was all right, and sold well, but the last lot is a fraud."

I explained that the first bought was sold before cool weather came on; but that the last lot had simply candied, as it is so affected in the liquid form by a low temperature. I want to emphasize with some stress, that it will not do to use packages for extracted honey unless they are easily made air-tight, and the honey sealed up while hot. Mr. Colton suggests that the pails that might be returned to the groceryman could be refilled by him from a 60-lb. can. Not many grocers will be troubled with this business, and especially after the honey has candied in the large can.

We bee-keepers must solve one problem more before we consider ourselves masters of the situation. We must discover what treatment, or what may be added to liquid honey, that will retain it, when we desire it, in this form. Just so long as the honey we sell, either to grocers or consumers, candies on their hands, there will be complaints, and suspicion of its purity. Talk about educating the public to know that this candying propensity of honey is the only guarantee of its purity is all a waste of time. Better add something to the honey that will retain it in the liquid state, and have no talk about its "going back to sugar," and "sugar-fed bees."

My elder son and I have canvassed many towns and small cities this season, selling honey; and our extensive experience in the business convinces us that there is still a growing mistrust and suspicion concerning the purity of honey, and that much of this distrust is created in the minds of the people because the nice clear honey they bought and liked so well had, as they say, "gone back to sugar."

I have talked myself tired a thousand times, to convince the people that there is no such thing as manufactured honey now on the market, but it

scarcely pays to waste time in the effort to drive away suspicion.

CAN WE MAKE MONEY, BUYING AND SELLING HONEY ?

In Notes and Queries Mr. Nance wished you to tell him if he could make money by buying and selling honey. Replying, laconically, you said: "Without knowing our man, I do not know how we could answer." There are but few good salesmen when it comes to selling honey. This is a product, the sale of which must be pushed. People do not generally volunteer to go to the bee-keeper to buy, unless the price is put very low, which often creates a good run; but to sell at the highest price, it is necessary to go to the consumer with samples, get orders, then deliver, giving some days for preparation to meet the bill.

No, it will not pay to buy honey to sell again if sold to grocerymen, as they will get about all the profits. If you are a good salesman, sharp and shrewd in business, and will look well to the details, selling direct to consumers, you can do a good business.

HOW TO DEFEAT, IN A LEGITIMATE WAY, FARMER BEE-KEEPERS WHO CUT PRICES.

I have met a good many bee-keepers on the streets this season who were offering honey at low prices, but even then it seemed to sell slowly. I am naturally sympathetic, and take a good share of comfort in helping brother bee-keepers get rid of honey they are offering at ruinous prices. What I have to say on this subject will be an answer to a question put to me by friend Rambler in a letter to GLEANINGS some time ago, which was something like this: "As J. A. Buchanan has had much experience in selling honey, will he tell us what course he pursues when he comes in competition with persons offering honey at low prices?"

We resort to many expedients to defeat those simple-minded bee-keepers who exercise such poor judgment in selling their honey so low as not to pay the cost of production. We generally aim to get the first honey of the season on the markets near us, establishing a good price, which goes a good way toward governing others in their sales; but when we do find persons selling so low as to injure the markets we give them a lesson not soon forgotten.

To illustrate: Last fall my son and I were soliciting orders for honey in one of our near towns, selling extracted honey at the rate of 6½ lbs. for $1.00, we furnishing screw-cap can for the same, and one-pound sections at 22 cts., taking no orders for less than 5 lbs. We had not been working long before we found that there was a man just ahead of us selling two pounds of comb honey for 25 cts., and 11 lbs. of extracted for $1 00. This was more than we could stand, so we started for his wagon. Finding him I said to him, "My friend, are you the man who is selling honey?"

"Yes," said he; "come and look at it."

I remarked that the honey was good, and asked him if he had been selling much. He said it was rather slow; that he thought of trying to sell out at the stores pretty soon.

"Now, if you will put the price down pretty low," said I, "we will take it off your hands at once." We bought his little crop, paying 7 cts. for extracted and 11 for comb, in pound sections. He had 900 lbs., half comb and half extracted. Now, we went on that day and took orders for all that honey, *clearing $70.00 on this lot!* This paid us well enough for our great "sympathy" in this case.

I will further say to Mr. Nance, that, from my observation and knowledge of the business of buying and selling, if bee-keepers can not sell their own honey at good prices, it would not be worth while to try to deal at all in honey.

By way of encouragement, I may say to those who may want employment, that we make it pay to handle honey. After selling our small crop this season, 6000 pounds, my elder son (20 years old) and myself bought and sold 30,000 pounds, clearing $850. We did this work, too, in less than three months' time. We bought direct from producers, where honey was plentiful and cheap, and sold direct to consumers, thus benefiting those who were looking for an outlet for their large honey crop, and at the same time furnishing profitable employment to ourselves after we had no more to do at our own apiaries. Now, this is the kind of business that *we* "add to bee-keeping" to fill out the unoccupied time. It has been suggested, that I hurt my trade by describing my methods of selling honey; but I do not think I have ever lost any thing by trying to benefit my fellows. True, some bee-keepers have taken up my plans, and have appeared in competition with me in my own markets; but for all this, my trade keeps growing in a satisfactory way.

J. A. BUCHANAN.

Holliday's Cove, W. Va., Jan. 8.

INVERTIBLE BOTTOM-BOARDS FOR THE CELLAR.

DR. MILLER ARGUES IN FAVOR OF THEM.

WITH no desire for controversy, but just because I believe the matter somewhat important—indeed, quite important—I want to say a word in reply to Ernest's remarks on page 51. You say, Ernest, that Mr. Boardman winters successfully, and I don't. Now, it's just that difference between my wintering and his that makes me very much interested in this bottom-board. I suspect his bees do better because there is never any difficulty about the air getting at the cluster easily; and if that were the only way to accomplish it, I wouldn't hesitate now to throw away all my bottom-boards and pile up my hives in the cellar, just like his. Suppose we look at one of his colonies in the cellar. The cluster hangs down below the bottom-bars; and if the usual bottom-board were there, the bees would be all over it, and perhaps filling the entrance, so that no air could enter, except such as might be strained through these bees at the entrance. It looks reasonable that Mr. Boardman's bees are better off with free access of air on all sides than they would be with this close bottom-board, and the usual entrance of 4½ square inches, and that entrance filled with bees. But a board might be directly under Mr. Boardman's cluster without doing any harm, so long as it did not touch the cluster, and I suspect the closing-up of three sides would make no material difference. Now, that is just exactly what I have with my deep bottom-board, only in some cases the cluster comes down and touches the board below, in which cases I think it would be better that the board be deeper. In no case has there ever been any inclination to cluster at the entrance; and as it is now near the end of January, I think there will be none. The entrance is from 5

to 20 times as large as they have had in former winters; and my hope is, to have friend Boardman's advantages without the attendant disadvantages. So far I am fully satisfied; and as I look into each hive and see the nice clusters hanging down surrounded with abundance of air, I can not but feel I have made quite a gain.

Now, if you please, Ernest, let me attend seriatim to your objections.

"More expensive." Yes; but five cents per hive will, I think, cover the extra expense, and I believe the advantage will pay it in a single winter. If it is valuable, we ought to be willing to pay for it.

"A body adapted to such a bottom-board could not be used for a super." Certainly—all you need is to put on the plane side of my bottom-board a ⅜-inch strip at the back end and the two sides, just like your present bottom-board, and it will be all right for the Dovetailed hive.

"Why not leave the bottom-board off entirely?" The bees will winter as well, possibly a *very little* better, with the bottom-boards off entirely; but I think that, when advantages and disadvantages are considered, I would rather have the bottom-boards on. The screws are put in *once* a year only. I want them just as secure as for shipping; and if the "loop and stick" does not make a hive secure enough for your shipping, it is not secure enough for my hauling. The hives are put into the cellar just as they were in the out-apiary; and when they are taken out in the spring, ten seconds will make each hive ready to put back on the wagon. About a hundred hives in the home apiary were taken into the cellar without having bottoms fastened, and that experience makes me think that, hereafter, I should fasten on bottom-boards if there were no other reason for it than the convenience of carrying into the cellar. Please remember that it is a very short job to drive in four screws, when the hive does not have to be turned over. One trouble with these hives carried in without reversing bottoms, was, that, when we went to lift them up, a considerable cluster of bees was left on the bottom-board on the stand, and we had to prop up each hive at one end two or three inches, and let them stand thus a number of hours for the bees to get off the bottom-board; and then when we did carry them, a good many bees kept spilling out, and occasionally an attack was made, while those with bottom-boards fastened on could be picked up at any time, and carried into the cellar, with no trouble. Another item that I value is, that, with these bottom-boards, mice are completely shut out by the ¼-inch-mesh wire cloth that is pushed into the saw-kerf at the entrance (I am sorry the illustration on page 50 does not show the saw-kerf). It is all well enough to say mice should not be allowed in the cellar; but I have not succeeded in keeping them out; and with the old way, I always carried some in, in the hives.

Now, my dear Ernest, while I am not fully satisfied with these bottom-boards, I strongly suspect that, if you should give them as much of a trial as I have done, you would find yourself pronouncing them "good" till something better was found to take their place. Although I have fought your objections with all the strength "la grippe" has left me, I am none the less thankful for your criticisms. C. C. MILLER.

Marengo, Ill., Jan. 23.

I agree exactly with the sentiment you express in the first sentence, doctor. While I may appear contrary, I only wish to get at the facts. I know that, when any thing works well, as you say your bottom-boards do in your cellar, it takes a multitude of controverting testimonies to make us even change our opinion. Boardman's plan of piling up hives without bottoms does work most admirably, so far, in my cellar; and the fact that such men as L. C. Root, G. M. Doolittle, Elwood—yes, and I believe Capt. Hetherington—and R. L. Taylor, all of whom, I believe, winter bees successfully, use no bottom-boards, or, at least, raise the hive up so far from the bottom-board that it amounts practically to the same thing, has great weight with me in arguing in favor of no bottom-boards.

You say, friend M., that you suspect the closing of the three sides would make no material difference. Perhaps you are right. But Mr. Cutting asked me, when he visited my cellar, what temperature I tried to maintain. I told him 45. He then remarked that he thought he could get better results by having it as low as 40 degrees in his cellar. Upon questioning I found that his hives had bottom-boards like yours. Now, it will be evident that the internal temperature of the hive whose bottom is covered will be higher than that of a hive without a bottom-board. Hence, if hives have bottom-boards, the temperature must be kept lower in the cellar than in a cellar where hives have *no* bottom-boards; and during very warm weather we all know that it is difficult to keep the temperature down so low as 40°.

In regard to those screws, I know from experience that we can not always screw the bottom-board in the same place—that is, so the screw-holes of the bottom will match the screw-holes in the hive; and unless we can make them match, we are always having a whole lot of holes either in the bottom-board or in the hive; and after a while it will be one big hole. I am quite sure that the loop which Rambler uses, or the double loop, to hold the cover and bottom, will stand more rough roads than will the loose hanging frames which you use, however well they may be stuck down with propolis and brace-combs.

You say, that carrying in hives that are bottomless will result in the loss of a considerable number of bees which will cling to the bottom. Very true, under some circumstances. But you know, doctor, that Mr. Boardman explained that the bottomless hives should not be carried into the cellar unless the weather is moderately frosty, or cold enough to make the bees cluster up pretty tightly in the frames; that is, clear away from the bottom-board. We carried a few hives and found bees clinging to the bottoms. We waited till it got colder for the rest, and had no trouble.

Now, doctor, I have argued in favor of the bottomless side of the question. Here is a letter which will sustain your side:

REVERSIBLE BOTTOM-BOARD; ITS USE FOR CELLAR WINTERING, MOVING, ETC.

Dr. Miller and others give us some good ideas of a space below the frames, but they do not seem to

describe all their advantages. I make them nearly as described on page 50, by the doctor, only the sides are perforated with longitudinal slots ⅝ inch wide. These slots are covered with wire cloth. This is a decided help for moving. Now, the end which the doctor fastens with wire cloth, I fasten with a wooden end hinged so it will swing its entire width.

Dr. Miller has trouble with the hives sliding around on the bottom-boards, and goes to the tedious task of screwing them on. I have used the Vandeusen hooks extensively for ten years, and consider them indispensable in practical bee culture. Every one is placed in the center of the side of the hive, and 1½ inches from the bottom. A screw to hook on the bottom-board is $\frac{5}{16}$ inch from the top, so that they are perfect-fitting. In each corner of the bottom, drive a small wire nail nearly in, then cut off to within ⅛ inch from the board; and as the hive is placed on the bottom-board the little spuds will pierce into the hive enough to hold all firm, and I feel a great relief to think I have a hive with a bottom fastened so solid, and yet have it movable.

Now a word about using this board for winter. I set the hives into the cellar, one on top of another, as you would cord up boxes, etc., with the movable end so I can easily get at them. Before the bees are stored in the cellar, each hive has a stiff paper spread upon the bottom-board, and the bees are closed in for the winter. How we enjoy moving the bees into the cellar and out again, and none of them allowed to come outside! Three or four times during the winter we take a basket to the bee-room, open the end, draw out the paper, shake all the dead bees and other refuse off into the basket, replace the papers, and we are rid of all bad smell and the trouble of sweeping the dead bees from the cellar. And, besides, we save a great many bees which wander out of their comfortable quarters in carrying out the dead.

The reason which caused me to invent this board or space was based upon two principles. Twelve years ago I swept up half a bushel of dead bees from the cellar bottom. They were left in a warm room about an hour, when, to my surprise, hundreds revived. I then came to the conclusion that many bees die which might live if they were confined in a way so they could not worry; and with me the plan works satisfactorily.

The second principle depended upon the fact that, without any space save the ¼ or ⅜ inch beneath the frame, the dead bees would often accumulate between the combs several inches deep, often mingling with the cluster of live bees.

In conclusion I will say, this space of 1½ inches beneath the frames for moving, and for accumulation of dead bees and other refuse material, and for confining them in winter, fills the bill for me.

MOVING BEES.

Before we move our bees into the cellar, we place upon each hive a wire screen; a frame is made of lath, and covered with a piece of wire cloth just the size of the hive. At each end are driven wire nails 1½ inches apart, long enough to reach through ⅛ or $\frac{3}{16}$ inch into the frames. You will see that, when this screen is nailed to the top of the hive, every frame is fastened at once by the points of nails projecting through as described. Now invert the hive or set it on end, and have a strip ¼ inch thick by an inch wide, with carpet-staples driven in so they will space the frames just right.

Loosen the bottom-board; arrange the spacing-strip, hook on the bottom-board, and, if you are afraid the hooks will slip, drive a small wire nail just back of them, and they are ready to pile into your wagon, combs to go lengthwise or crosswise of the wagon, as best suits your convenience.

Oswego, N. Y., Jan. 21. F. H. CYRENIUS.

Thanks, friend C. And I want to say to the others who criticised me pretty severely because I advocated fastening the bees in their hives while in the cellar, that the above shows that I am not the only one who does it successfully.

THICK TOP-BARS AND BRACE-COMBS.

OLIVER FOSTER'S EXPERIENCE WITH 4000.

OWING to ill health, and the care of three large apiaries and a good supply trade, I have not been able to read the bee-papers much, not to speak of writing for them, as I should like to do. But being confined to the house two or three days with the grippe, I have read the last two numbers of GLEANINGS, and feel constrained to give my experience with thick top-bars and brace-combs. Last spring I had 4000 brood-frames, made like sample I mail you herewith; top-bars ⅞ inch square. I would have made them $1\frac{1}{16}$ inches wide, but for the influence of Bro. Heddon's articles, so strongly advocating top-bars just ⅞ inch wide.

Ten of these frames are used in the L. hive, 14¼ inches wide inside, the same as the Simplicity. The spaces between the top-bars are $\frac{11}{16}$ of an inch wide, or a little more than ½ inch. I put nearly all the 4000 frames to practical test. I had a great deal of sealed honey deposited between and over these top-bars, not to speak of brace-combs, and bees not crowded either. I tell you, it makes work to cut out half a pound of honey and wax from between top bars before we can go through the brood-nest with any satisfaction. They were a little worse on the "regulation" top-bars, but not much. Our bees seemed to have a mania for brace-combs this season. Do they build them above the break-joint honey-board? Yes, and in every bee-space between supers above.

The only object of the break-joint, as I see it, is to increase the bee-space distance between the brood and the sections. The same object can be secured by having these bee-spaces run straight up, if far enough, as by having them run zigzag, as with the break-joint honey-board; but we want it to be *bee-space*—not half an inch or more.

I do not wish to criticise the break-joint honey-board—the best thing that has yet been perfected, nor its inventor, to whom we all owe very much for the invention; but if we can prevent brace-combs *between* and *over the top-bars*, which I believe no one claims the break-joint honey-board will do, we shall make a great advance. From experience with 30 colonies the past season, I am satisfied that this *can be done*. If not by reducing the space between the deep top-bars to $\frac{5}{16}$ inch, we can do it by inserting a strip of perforated zinc at the bottom of this space. Cut the zinc ¾ inch wide, and put one row of holes near one edge. Bend at right angles the long way, $\frac{5}{16}$ from this edge. Nail the wide side to the top-bar, so that the perforated part will close the bee-space between it and the adjoining top-bar

at the lower edge of the bars. Perhaps this will be unnecessary with the proper space between the top-bars, which, I think, is $\frac{5}{16}$ inch.

I should like to ask friend Heddon how he harmonizes the three strong points he makes on page 44; viz.: 1. Top-bars ⅞ inch wide; 2. 8 of these to 11¼ inches; and, 3, "$\frac{5}{16}$ is the best passageway for bees." If he makes the passageways $\frac{5}{16}$ he must make his top-bars $\frac{7}{32}$ wider, or else space his frames that much closer; $1\frac{1}{16}$ is the right width for 1⅜ spacing.

Mt. Vernon, Ia., Jan. 24. OLIVER FOSTER.

Your top-bars, according to the testimony received thus far, lack just one important feature to prevent brace-combs; and that is, they are too narrow. If they had been $1\frac{1}{16}$ inches wide, or even a plump inch, as you intimate—at any rate, wide enough so that $\frac{5}{16}$ of an inch will be left between the bars, you would have had no brace-combs, if the overwhelming testimony thus far received is correct. We have watched quite closely the reports, and we find that, where there is ½ inch between the bars, more or less brace-combs are the result. In regard to those pieces of perforated zinc, there is another thing you had not thought of. They will *fix* the frames, and they would always be ready for moving bees. The objection to them would be, that they might, after a while, become stuck and daubed with propolis. Mr. Heddon may answer about the honey-boards. He will have to be advocating wider top-bars now. By the way, when he gets those thick top-bars in his new hive, what will become of his comb space? Bars ⅞ inch thick, above and below, in these shallow frames, will leave the brood-combs only about 3 inches deep. In my opinion, there wouldn't be much brood-nest left. ERNEST.

THE CHITTIES' EXTORTIONATE USURY.

SOME OF THE EVILS AS A RESULT OF THE LACK OF CHRISTIANITY.

MR. ROOT:—GLEANINGS has become a looked-for visitor to this land of the antipodes. The back numbers have been preserved, and I mean to have them bound and present them to the Sir Stamford Raffles Library of this city. Little is known of, but some interest is shown in, bee culture.

In regard to the champagne-bottle and glasses in the fruit-picture, I wish to say that I bought the picture at the photographer's gallery, and had nothing to do with the arrangement, or I should certainly have left it out of the group. [P. 701, 1889.]

To one unacquainted with oriental races, the most interesting feature of this great city is the vari colored skins and costumes that meet the eye, and the widely differing tongues that greet the ear. All the European nations are represented —the English, Germans, and Dutch (or Hollanders), predominating. There are also natives of China, Malaya, Burma, India, Siam, Japan, Arabia, South Africa, Egypt, Persia, Armenia, and the dispersed sons of Israel. Of the several Indian races represented, one of the most interesting is the Hindu caste known as "Chitties," or money-lenders. I send you a photograph of two of these money-sharks.

Lest some of your readers may think I am indulging in fiction, I will say that I relate only the sober, honest truth. There are hundreds of these fellows in the city, and their sole business is loaning money at ruinous, even fabulous, rates of interest. They are heathen indeed; but no more so in faith than in practice.

Scanty, but neat in their dress; fat and well-favored, destitute of hair or beard, and striped with whitewash, they are striking characters in the ever moving drama of street life. Often rich, they are always penurious. They live crowded together like sheep, in houses that might be decent; but, to suit their manner of life, are made to appear more like badly kept barns than human habitations. Unclean in their habits, they do not seem to regard a double-distilled stench as any drawback to either health or happiness. I have passed some of their

THE CHITTIES, OR MONEY-LENDERS.

houses in the native portion of the city, where goats and fowls moved freely in and out, and a stream of accumulated filth oozed its way slowly along the gutter just at their door. Nor are other oriental races more righteous in this respect than the Chitties. Indeed, the Chinese will excel them all, with this qualification—that a wealthy Chinaman lives well, and with at least moderate respect to cleanliness and decency. The Chitties are Hindus in religion, and this is indicated by their manner of dress, their shaven heads, and their business. Among the Hindus—there are many natives of India who are Mohammedans—the Chitties have the monopoly of the money-lending business. A Mohammedan would never patronize a Chitty, and a Chitty would no sooner deal with a Mohammedan. They purposely shave all hair from their heads, and beard from their faces. Their ancestors for many generations have done it, and their posterity will continue to do it for many generations more. It is a distinctive mark of their caste. Not

a hair is allowed to grow. They wear no turban or head gear of any kind, unless an umbrella can be so classed. They indulge in a few ornaments, which are generally very costly. They are often seen wearing a deeply engraved pure gold ball set on the outer lower lobe of the ear, *a la mode* of our western belles. Sometimes a diamond sparkles in the gold. The deep yellow of the gold and the white light of the diamond present a rich and striking contrast to their dark skins. If they are very well-to-do they wear a similar ornament held in place on the front side of the neck by a fine gold chain or a silk cord. Sometimes costly rings adorn their fingers.

The white streaks on their foreheads, arms, and breasts, are at once a caste-mark and a toilet requisite. They are easily washed off, and are daily renewed. Their sandals are of a pattern much worn in the East. Their entire suit, if a name so dignified may be applied to their abbreviated garb, costs little more than a dollar and a half or two dollars. It may be said, that these fellows could with difficulty wear less. To the untutored American, the proposition seems more than true; but not a day passes that we do not see scores of municipal coolies handling the pick in street repairs, that are, to all intents and purposes, naked. Most of them get twenty cents a day; and two or three yards of four-cent cotton or calico makes them a fine suit. It is wound once or twice around the loins, and extends from front to back. These poor fellows are better off here than they would be in India, for there their daily wages would not exceed eight or ten cents, and they would be very glad to get moderately regular employment at that price. You can see from this that poverty is unknown in America. The poorest man in Ohio would be a nabob alongside the outcasts of India. Their diet is confined to cooked rice and a little curry made of the commonest vegetables, fish, or the cheapest meat. No bread, no drinks, except water, no meat. Can I be believed, when I say that millions in India go to bed hungry every day, because they do not get enough of this severely simple fare to eat?

I remember how my heart ached when I first comprehended that these low castes of India have little or nothing but simple rice and curry to eat, from one year's end to another. These are the people our missionaries in India are trying to save, and they are beginning to come by the hundreds and thousands. Last year, in our North-India Mission, fourteen hundred of these poor villagers were baptized, and as many more were denied this sacrament until they could be more perfectly taught.

I hope the readers of GLEANINGS will think of the poverty of these people when they sit down to their heavily laden tables, and look at their well-filled cellars and barns, and not withhold the tithe that belongs to God by right, and along with it *give* something to evangelize the heathen when the missionary collection is taken; for all our home churches have such a collection.

The Chitties are a difficult class to reach in India, and no effort is made to do it here. In Singapore there are a hundred thousand Chinamen, fifteen or twenty thousand Malays, and at least as many "Klings," or low-caste natives of India. The Chitties can be counted with three figures. Our work here is mostly among the Chinese. The Chitty is without oul, or as near it as a heathen can be.

One instance will suffice to illustrate their rapacity when dealing with men in a helpless position. The pastor of our English congregation related the following almost incredible tale at the tea-table a few days ago:

A poor man in the town fell sick, got in arrears with his rent, and was at last driven by his landlord to either pay up or vacate. He went to a Chitty to learn upon what terms he could borrow a hundred dollars, and this was the best bargain he could make: The Chitty said, "I will loan you a hundred dollars on these conditions: You write me your note for a hundred dollars, to be paid in monthly installments of ten dollars. I must charge you thirty dollars for the use of it, and I will deduct the interest and pay you seventy dollars down."

The poor fellow was between the upper and nether millstone of a merciless heathen landlord and a more merciless heathen Chitty; and how could he escape being ground to powder?

Will some of your readers tell me the rate per cent this man had to pay? It is a puzzling problem that confuses most of the victims of these Shylocks. I make out that he paid no less than 128½%. He receives $70 for his $100 note. In one month he returns $10, and has $60 left. He has had the use of $70 one month. At the end of the second month he pays the Chitty $10 more, and has $50 remaining. He has had $65 for two months. At the close of the third month he has $40 remaining, and has had the benefit of $70 for one month, $65 for two months, and $60 for three months. Follow this out, and you find his principal continues to decrease at a compound ratio, until, at the end of seven months, he has returned the $70 he borrowed, and still owes the $30 interest, so that he has had $40 for seven months, or $28 for ten months, and pays $30 for the use of it! Compound interest with a vengeance! Nor is this an uncommon occurrence.

The Arabs and Chinese are quite as unscrupulous; but as the former are landlords and the latter merchants, we hear less about it. *Any* man who knows not or fears not God, and is unrestrained by public opinion, would do the same. The unscrupulous stock gambler and speculator, the trust-maker, the bank defaulter, are what they are for the same reason that the Chitties are what *they* are. The remedy for all of them is the gospel of Jesus Christ, which teaches, "All things whatsoever ye would that men should do to you, do ye even so to them."

RALPH W. MUNSON.

Singapore, S. S., Nov. 25, 1889.

Amen, Bro. Munson. Jesus Christ is the remedy, and the only remedy, for all sin and extortion in every form. In some places in California I witnessed a similar custom of extortion. It was only among people, however, who were in tight places, and where the money-lender had to take the risk of getting undesirable property on his hands. Those who were well-to-do had no difficulty in getting money at eight or ten per cent interest, or perhaps a little more than we have to pay here. I am deeply interested in these Chitties you tell us about; but I confess I can not quite understand why you say they are without souls. The love of money is, I am well aware, a hard thing to deal with; but for all that, most human beings can be taught, sooner or later, that there is a better thing in this world than even money.

GETTING BEES TO BUILD CLEAR DOWN TO THE BOTTOM-BARS

BY LEAVING AN EXTRA SPACE UNDER THEM.

THE thing I like best about GLEANINGS is the deep enthusiasm and love for the business yourself, and your *good will* to all the bee-men, so that I have come to regard you as a personal friend; and I speak not only for myself, but for others who have expressed themselves similarly. The last time you were through here you had not much chance to get acquainted with the bee-keepers of Woodman.

There was a good deal said at one time in the journal about full frames of comb, some advocating reversible frames. Now, I don't believe in turning the cells upside down if it can be helped. I have about 600 frames of comb that are nearly all built down solid to the bottom-bar, and yet I never used foundation. The reason I assign for it is this: There is a space *under* the brood-frames, of about 2 inches in depth. Now, I think it is natural for bees, if left to themselves, not to build their combs *clear down* to the *bottom* of a cavity; and where the frames reach *nearly* down to the bottom-board it will be natural for them to leave that space, unless crowded for room. Some hives have the bottom of the frames so near the bottom-board that they harbor moths underneath; and it is more difficult for the bees and all concerned to keep them clean. One man in the last journal advocates giving a 2-inch space under the frames in winter, but reducing the space in summer, as it is not so well to have it at that time of the year. Now, if there is any thing wrong about leaving that space at *all times*, I should like to know it. If the space is left, the bees will certainly build the comb down to the bottom-bar. They may not all be built solid the first year, but they will in time. If this is of any importance I can give the exact space under my frames. If the space is too great they will build burr-combs under the bars. Once in a while they will do it on mine, but not often.

My uncle says he has observed, that, when bees visit the flowers, each individual bee will stick to some particular flower or species of flower. I have not noticed it myself; but if the thing is mentioned, there may be those who will observe. I have seen that, in gathering pollen, some bees will bring in one kind and some another, but I don't think I have seen different kinds of pollen on one bee. If it is as I have stated, it shows the wonderful adaptability of the wants of plants and animals to each other, as that would tend to the more certain fertilization of plants, and also prevent cross-breeding. I suppose it is well known, that Charles Darwin, in his experiments on the fertilization of plants, by confining, under glass frames, certain kinds that bees and other insects visit, discovered that, in some species, fertilization would not take place, so that, without the bees, some species would perish.

Woodman, Wis., Jan. 28. J. MURRAY.

Thanks, friend M. Your kind letter recalls my pleasant two-hours' visit in your town. Your suggestion in regard to more space under the bottom-bars is a valuable one. One objection, however, is, I think, making bees extra trouble in getting from the bottom-board to the frames. With a space ¾ of an inch they very often if not always build little projections to climb up on. I do not know that I ever tried two inches in the summer season. When we first used Kings' American bee-hives there was a cross-bar in the middle of the frame, and no bottom-bar at all; therefore the bees built the comb down as far as they wanted to, and stopped. I believe they usually stop somewhere at about two inches and the bottoms of the combs are very irregular. In fact, they were a good deal as we find them in box hives. It has before been mentioned, that we can secure comb built clear to the bottom-bar by raising one frame a little higher than the rest. But I do not remember that anybody has suggested raising *all* of the frames in order to secure this result.—Your suggestion in regard to why bees should never mix pollen seems to be a reasonable one, and indicates, as you suggest, divine wisdom.

BEE-HUNTING IN 1857.

ALSO SOMETHING ABOUT BEARS AND THEIR HABITS.

I HAVE a bee-book with your name to it, and I should like to know whether you realize much from the 4000 basswood-trees you set out in 1872. They must be quite large by this time.

Last spring I had 4 swarms of bees. I got 250 lbs. of section honey, and have now 15 swarms.

I hunted bees a little one season, years ago. I found eight swarms, summer and fall; the lightest weighed 25 lbs.; the two heaviest, 200 lbs. apiece. I saved one swarm in a pine-tree. I cut it out of the top, and let it down with a rope. I kept them in the log, standing up. They did very well. In December, when the snow was six inches deep, I went hunting and came across a bear-track. I followed the track very cautiously for half a mile; then I discovered that the bear was a bee-hunter. He was climbing every tree that looked like a bee-tree. He went up twelve or fourteen trees, then turned down into the valley. The first tree he went up was a bee-tree. I went up on the ridge to the road, and marked the tree. Then I went back to the track, and, following about a mile, he went up on the ridge. He did not go up any more trees. I went up on the ridge where he had been sitting down, watching for me, which they will always do. Well, then he went off on the jump, and I put for home. In a short time I took my neckyoke and two sap-pails, each holding 20 quarts. The tree was white oak, 20-inch stump, leaning in a bow, so the top nearly touched the ground. The bees went into the tree 20 feet up on the under side. They had a nice place. I cut the tree down. I cut in where the bees were, and took out the honey. I filled the two pails, went home, came back, got two more, went home, then it was dark. In the morning I went back, took out two more, then I went and cut in three feet from the butt, and struck honey; and if I had cleaned out the butt I could have seen the honey. I left my pails, went home, got my horses and bob-sled. I had to go about six miles to the tree. The way I went first was two and a half miles. I took a large wash-tub. After I had got all the honey out of the tree into the tub, I put in one pail full, which was all I could get into the tub. I must have had nearly 300 lbs. It was good honey, no empty comb. There are no such trees nowadays.

There are too many bee-hunters now. That was in 1857. The next spring I killed one old bear and two cubs. It was excellent meat. NATHAN CULVER.

Ontario, Wis., Dec. 27, 1889.

Friend C., nearly all of our 4000 basswood-trees are growing; but as they were planted on a poor worn-out piece of land, a good many of them have not made as much growth as we expected. Some of them are six inches through, and bear quite a quantity of blossoms; but it takes a great many years to get a basswood orchard to bearing honey, especially when you commence by planting trees. Better adopt the plan I spoke of in the last issue.—It never occurred to me before, that bears must climb one tree after another, to find one that contains honey. They must be very patient if they always hunt bees in that way. Your sketch of bee-hunting would almost give one the bee-hunting fever if there were many such trees nowadays.

DIGESTED NECTAR.

CHAS. DADANT REVIEWS PROF. COOK'S ARTICLE, PAGE 53.

THIS term "digested," when applied to honey, lacks convenience and accuracy. The idea of digestion comes to the minds of us unlearned people with the thought of its whole process as we find it described in the *Chambers' Encyclopedia:* "Prehension of food, mastication, insalivation, deglutition, chylification, defæcation, and absorption of the chyle." This definition of the word "digestion" is not confined to England, for we find, in the French *Dictionnaire de Medicine*, of Littré and Robin, "Digestion is the dissolution and liquefaction of the food, with absorption of the substances dissolved and liquefied, followed by the dejection of the residues." Therefore the words, "digested nectar," if applied to honey, would prejudice some consumers rather than incite them to buy.

Of course, a scientist may argue that, as the nectar undergoes a change in the first stomach of the bee, this change can be called digestion; for, when a druggist mixes several substances, with a view to obtaining a combination, he calls the process a digestion. But the stomach of a bee is not the laboratory of a drugstore.

As to the inaccuracy of the term "digested," Prof. Cook himself proves it in his essay read at the International Bee-Keepers' Convention in Brantford, and in the discussion which followed (*American Bee Journal*, Dec. 28, page 832), where he says: "All honey is not equally reduced, not fully digested." It seems to me that, if something is half done, we are not accurate if we say that it *is* done.

This difference in the modification of nectar in the first stomach of the bee can not surprise us, not only because the nectar sometimes does not remain long in the stomach, but also on account of the difference in the relative quantities of cane sugar to be converted into glucose—some nectars having no glucose, while others have no cane sugar. Mr. DePlanta found in the nectar of the *Protea mellifera* 17.06 per cent of glucose, and no cane sugar; while the nectar of the *Hoya carnosa* contained 4.99 per cent of glucose only, and 35.65 per cent of cane sugar (*Bulletin Internationale d'Apiculture*, Oct., 1888). Then the bees had no change to make for the first of these nectars. Would Prof. Cook consider it as already digested in the flower?

The above experiments show, also, that Prof. C. is mistaken when he says, page 53 of GLEANINGS, that "nectar is cane sugar dissolved in water;" since the nectar of the *Protea mellifera* had glucose and *no* cane sugar. The causes of these differences in the composition of nectars are fully explained by Gaston Bonnier, who, indorsing the views of Claude Bernard, writes in his book, *Les Nectaires:* "There is always an accumulation of sugared substances in the flowers, near the ovaries. When these organs are completely developed, this accumulation of sugar decreases, and the proportion of saccharose (cane sugar) becomes relatively smaller, the saccharose being transformed into glucose under the action of an inverting ferment."

It follows from the above, that a nectar just secreted in a flower contains more cane sugar and less glucose, while another, which has remained for some time in the flower before being gathered by bees, has more glucose and less cane sugar.

A great many substances can undergo, in their composition, a change analogous to the modification effected in the stomach of bees. For instance, starch, cooked and masticated, is converted into glucose by the saliva, and can be assimilated without further change, although the variation was effected before the deglutition.

The pulp of a green grape is of difficult digestion; but by ripening, it is converted into liquid grape sugar, which can be converted into wine. Both these liquids are readily assimilated by the intestines.

If we leave a mixture of cane sugar and water exposed to the light, all the sugar will be converted into glucose. Will Prof. Cook say that all these substances were digested? No, of course not. Yet he said, at the above convention, that "honey is digested, since it is in a condition to be assimilated without undergoing any change."

This assertion is far from being correct; for I have seen people getting indigestion by eating honey when the food of their last meal was not entirely digested. Had these people drank a glass of sugared water, or of wine, their digestion would not have been disturbed. Then honey is not so readily assimilated as our friend Cook supposes. Dyspeptics can not eat honey without increasing their distress. Furthermore, we see in GLEANINGS, page 62, that honey from *lobelia*, which is nauseous, is sometimes vomited. Is that honey digested, or ready for assimilation?

Honey contains, besides glucose, several substances which have to be converted in the true stomach of bees, by the gastric juice that it secretes. Then the digestion is far from being completed in the honey-crop.

In conclusion, I will say the professor had better abandon this unhappy term of "digested," and I think that a large majority of bee-keepers are with me to give him the same advice.

Prof. Cook, in his essay, said that he questions whether any chemist can certainly determine whether or not honey is pure. I find in the *Revue Internationale*, of July, 1885, a new method of analysis by Fritz Elsner, of Leipzig. Eleven samples of pure honey were introduced, one after another, in a Wasserbein apparatus; and the conclusion of the analyses was, that, in every kind of pure honey the quantity of sugar of fruits, or inverted sugar,

deviating to the left, is always strong enough to counterbalance the deviation to the right, of the natural grape sugar; or, in a word, every pure honey is either without action on the polarized light, or deviates slightly to the left, never to the right. These experiments were confirmed by others, in which from 5 to 20 per cent of manufactured glucose, after having been stored by bees in the combs, was mixed with pure honey, and which, every time, turned the light to the right. CHAS. DADANT.

Hamilton, Ill., Jan 23.

Thanks, friend D. While I do not propose to take part in this discussion, there is one point on which I am prepared to give testimony. I often feel a little bit troubled on this point, when I see honey recommended so vehemently for food and also for medicine. Of late years it is not very good food for me, and, generally speaking, rather poor medicine. I never could quite understand it, either. I am very fond of sweets, and can eat maple syrup for supper, with perfect impunity; yes, I can take two or three spoonfuls of granulated sugar in my hot lemonade, just before going to bed; and instead of disturbing my sleep, it does quite the contrary. Now, there is something about honey that is entirely different. If I eat honey at all it must be in the morning or at noon; and even then it is quite apt to give me the headache. Whenever I eat it for supper there is trouble, and I have tried it hundreds of times. It is the worst article of food for me to digest that I have ever got hold of; and I can not discover that there is very much difference in the kind of honey. While maple sugar or maple syrup is harmless, honey is almost poison, if taken in the same quantities. My testimony would be, then, that honey is neither digested, nor very easily digest*ible*. Perhaps, however, this has no bearing on the question. I have seldom mentioned this matter, because others seem to be differently affected, and also because it did not seem very consistent for a honey-man, and the editor of a bee-journal, to be putting in testimony *against* the use of honey.

THICK TOP-BARS.

MR. J. B. HALL MAKES A CORRECTION.

MR. ERNEST R. ROOT:—Your postal, also copy of GLEANINGS for Jan. 1, came duly to hand. Please accept my thanks. I am glad that you had such a good time at Brantford. But I think there was so much to be seen around the Falls that you must have become somewhat mixed in what you saw and heard in Brantford. An example on p. 17: In speaking of J. B. Hall you speak of his *Scotch accent*. Allow me to whisper in your ear, that the old fellow *niver saw Scotland*, and he does not know a particle of that blood in his veins. The nearest approach to his being Scotch is in the fact that his wife was the production of a match of a Dutch-Yankee woman and a Scotch-Canuck man, and I think the presence of that amount of Scotch blood in Hall's wife would not affect his speech much. He came to North America in 1856, and settled in the largest and best part of it; namely, Canada; and at the time (I will say this for your benefit, as at that time you were not born), allow me to state, the great English-speaking peoples in North America, both south and north of that "big wall" you speak of, lived as happy neighbors, and traded with each other freely, your own people selling us all of the following goods: Cotton goods of all kinds; farming implements; machinery of all kinds; ready-made clothing; hats, boots, salt, salt pork, cheese, etc., and you bought from us all of the following (that was A No. 1): Lumber, wood, grain of all kinds, with the exception of maize (corn), horses, cattle, sheep, swine, and all of our grand fish you wished, for the taking (although your men persisted in breaking our Sabbath laws), the product of the mine, iron, lead, copper, silver, gold, nickel, plumbago, phosphates, etc. In fact, your people used to buy all our raw products, and send them back to us after manufacturing. You were our "middle men." This has all been changed by the madness of some of your politicians, who clamored that the reciprocity trade should be annulled, and that those insolent fellows at the north should be kept there to freeze.

At this time, I, with most of my countrymen north of the "wall" you mention, felt hurt, and thought it a bad job for us; but it was a blessing in disguise; for Canada has progressed as she could not have done had the old state of trade continued, and the sixty millions of people south of the line managed the five millions north of the line.

To return to p. 17: I would say that the frame I use has a top-bar 20¾ x 1 deep x 1 plump inch wide. I use 8 frames in my hive, 11½ inches wide. Thus you will see a bee-space $\frac{5}{16}$ is maintained. In fact, all parts of the hive have this $\frac{5}{16}$ space between, to do away with brace-combs in any part of the hive. It was no blunder or chance that made the space $\frac{5}{16}$, but from experience and observation in handling bees. The last lot of Quinby frames I made was in 1881, number 3200. The top-bar was 20¾ x 1 x 1 inch plump wide; end-bar, 11¼ x 1 x ¼; bottom-bar, 18⅜ x ¾ x ¼. I think you are a little hard on the old man, in attributing his doings about the apiary to accident and blundering; and I sincerely wish and hope that you will not make any worse blundering than I have done in frames and hives.

J. B. HALL.

Woodstock, Ont., Can., Jan. 20, 1890.

Very good, friend Hall. If the fact of my mixing up Niagara Falls with thick top-bars caused me to report your statements so crookedly as to induce you to write for print (even by way of correction) I do not feel so very sorry, after all, as it takes more than money to induce you to write. And now our readers have a correct statement of the facts. The expression, "blundering on to a discovery," was rather unfortunate; but as I understood you while talking with you between the sessions, you said that you at first did not intend to do away with brace-combs by adopting thick top-bars—your main idea being at first to do away with sagging; but the fact that this happy result (no burr-combs) was brought about by careful experiment and not by "accident" or mere "blundering," is more to your credit. I believe, friend Hall, you were the first to bring this important matter into public notice; for it seems that quite a number, after reading the report of your thick bars and no burr-combs, began experimenting; and now you see they are

starting up everywhere, substantiating your statement made at Detroit. Bee-keepers owe you a vote of thanks, if not something more substantial. Mr. McKnight, as you doubtless have noticed, has corrected me in regard to the Scotch accent; but there was something so pleasant (may I not say captivating?) in your conversation that I could not think of any thing better to dub it by than "Scotch accent." In regard to that "big wall," I think I had better not tackle it again. It is a dangerous subject over here, and people sometimes get to arguing pretty fiercely. But there are good people (just like ourselves) over in the province of Ontario that I should like to have annexed to the United States, though I am not so particular about Quebec. ERNEST.

HOUSE APIARIES IN 1890,

AS CONSIDERED BY J. VANDERVORT.

As we have an occasional inquiry in regard to house-apiaries, and as I have of late years rather discouraged investments in this direction, I thought best to write to our friend Vandervort (the one who makes the nice foundation-mills), to inquire if he still used and liked them. Below is his reply:

Friend Root:—I still use the house-apiary, and like it as well as ever. When I saw you last I was keeping my home apiary in hives. I have since built a house at home, and use the house exclusively. I do not recommend it for public use. Aside from two parties in this vicinity who use houses on my plan with good success, all others are a failure. It requires more skill to work a house than hives. The advantages that I claim for a house are, first, the control of temperature, which controls swarming in a great measure, and starts them to working in boxes sooner, and a cool night or two does not drive them out of the boxes as it does in hives outdoors, which makes a great difference in the amount of honey they store, especially in a very cool season.

Last, but not least, I can do the work for two colonies in the house easier than one out of doors. The objection to the house is, I lose more queens in mating, get more stings in handling, and lose more colonies in winter; but what are left breed up enough quicker in the spring to nearly compensate the loss. J. VANDERVORT.

Laceyville, Pa., Jan. 24.

Very good, friend V. I am not surprised to hear you say that all others are a failure, and that it requires more skill than to work hives. The point you make, however, of controlling temperature and swarming, and starting and keeping to work the bees in the boxes, is a big item; and the final one, that you can do more work, is of more importance still. With ours we did not lose more queens than outdoors—I am inclined to think not as many. Ernest says, however, that the boys did not succeed as well. But I feel sure that, with only three entrances on a side, and six or eight sides to the house, you can get along without losing queens. I agree with you in regard to stings. All bees I have ever handled certainly sting worse indoors than they do outdoors in the open air. We think that, with a house-apiary properly protected and kept in order, one can also work at any season of the year, with less trouble from robbers. Friend H. S. Hoxie, of Holloway, Mich., has just sent us quite an article for publication, in regard to the house-apiary he uses and likes. He uses ordinary hives placed back a little distance from the wall. A covered entranceway conducts the bees from the hives to the passageway through the wall. This passage *from the hive to the wall* can be easily uncovered; and when opening the hive he uncovers this passage. This permits all the bees that get out of the hive to go into the entrance as if they were outdoors. He can even shake the bees from the combs in front of the entrance as he does outside; and he says he has no trouble from bees getting into the house, on the floor, etc. There are so few house-apiaries at the present time that we have not thought best to give very much space to such communications.

ALFALFA IN IDAHO

AS A FODDER AND A HONEY-PLANT.

DEAR SIR:—I see that you have solicited contributions upon the subject of alfalfa (lucerne). We here in Boise Valley, Idaho, as also in adjacent valleys, are engaged largely in its production, considering it the most paying crop that is produced upon the ranch. We invariably get three crops of excellent hay per season. Some cut four crops, or, rather, four times; but the majority believe that, to let it stand a little longer, and mature more, it makes a more nutritious feed, and is not so "washy," or laxative, as is the case when cut too green; hence the three cuttings will go as far, if not further, than four cuttings, and at a saving of labor.

Alfalfa is naturally a little laxative; but when cut at the right time it is an excellent feed, and will yield here from five to eight tons of hay per acre, per season, besides a quantity of fine grazing late in the fall. Sometimes one crop for hay is cut, and the second one is allowed to ripen for seed, and make from five to ten bushels per acre. It sells for $6.00 per bushel. It is fine, so far as I have learned, in all arid districts, where water can be got for irrigation. It is a plant that will not stand much water—not nearly as much as the other clovers, and I believe that it does well in any sandy loam in any part of the country, and possibly in any deep loose soil. It is a plant that roots deep, and hence requires a deep loose soil, so it will hardly do any good on a clay or close soil. It improves for about three years; or, in other words, it takes about three years to get to its best yield; and it certainly is one of the best, if not *the* best honey-producing plant in existence. If the cutting of hay is properly managed it will give a forage for bees the entire season, and it yields as fine a honey as does white clover. It certainly will revolutionize apiculture as was never known before. The bee-business is certainly taking a prominent hold here. There are at least half of the farmers in this large valley that are starting in the business, generally on a small scale as yet. The apiaries range from 5 to 125 colonies; but none are carrying it on in a scientific or even a systematic way. DAVID L. WILLIAMS.

Caldwell, Idaho, Dec. 21, 1889.

Thanks, friend W. I am somewhat surprised that alfalfa has been so long produced on vast tracts of land, without our having heard more in regard to it as a honey-plant. It is true, something has been said occasionally for perhaps ten or fifteen years; but when I made my visit to California a year ago I did not see nor hear of any great yields of honey from alfalfa; neither had it been found on the markets, so far as I could learn. Any plant raised by farmers, that produces honey by the carload, aside from the purpose for which it is cultivated, is well worthy of our attention. I should be very glad indeed for further reports, especially where it produces honey by the ton.

APICULTURAL NOMENCLATURE.

R. M'KNIGHT ARGUES IN FAVOR OF THE ALREADY ACCEPTED TERMS, AS DETERMINED BY COMMON CONSENT.

ADVERTING to your issue of January 15, and to Dr. Miller's letter therein, anent apicultural nomenclature, I am led to reflect upon the imperfection of all sublunary things with which man has to do—bee-keepers' terms not excepted. Some one has said, that "proper words in proper places is the true definition of style." According to Dr. Miller, there is little style in bee-literature, for he hints at a misuse of words throughout. There can be no doubt that the doctor is a judge, and a good one too. Most assuredly, a gentleman who can write fifteen long letters on out-apiaries, without repeating himself, is no mean authority on the proper use of terms. One would think such a one would be free from the use of inappropriate terms; but, if I mistake not, he himself has given us some terms that will hardly bear criticism. Is he not the inventor of that inappropriate phrase, T super, or T-tin support? Is there any super in use that bears the slightest resemblance to the letter T? If so, I have not seen it; and a man's imagination must be vivid indeed that can see a resemblance between the tongued and flanged strips of tin used to support sections on a section crate to the aforesaid letter of the alphabet. The doctor is exercised about the correctness of many of the terms we employ. His suspicions hover around such words as super, crate, case, clamp, hive, apiary, etc. I have always thought that "common consent" has much to do in establishing the meaning of words; and by common consent a definite meaning has been given to each of the terms quoted. The doctor singles out a few of the terms that make him feel most uncomfortable in their use, such as crate, case, apiary. He tells us Webster defines crate to be "a wickerwork structure used for packing crockery in;" but Webster is dead, and the crockery-crate is no longer exclusively made of wickerwork. Many of them are now made of strips of wood instead; still, they are called crates. So are many other things made of slats or strips of wood. We have section crates, egg-crates, berry and fruit crates, none of which are made of wickerwork—properly so called, but we understand and know what the terms mean. What incloses sections while on the hive is not a box, for it is open above and below. By common consent it is called a crate. Let us be content with the term, for it would be difficult to find a more appropriate one.

It is no misnomer to call the wooden or partially wooden box in which comb honey is sent to market a *case*, for the term case means, by common consent, an outer protective structure, and has a wide application, both as to shape and the material of which it is made. We have not only a section-case, but we have gun-case, book-case, spectacle-case, clock-case, watch-case—yes, "through the crystal *case* the figured hours are seen," somebody tells us. Even the outer wall of a building was called a case before Webster was born; for Addison tells us, "The *case* of the holy house is nobly designed." Let us be content, then, with case.

I should be glad, if space permitted, to go through the list and try to help the doctor out of his dilemma, and establish him in the belief that "it is better to bear the ills we have, than flee to those we know not of."

I suppose your definition of an ap ary as "a place where bees are kept" will help to reconcile the doctor to a continuation of its use. I might assist you in this by citing the terms aviary, hennery, piggery, queenery, and grapery, as being appropriate in their respective uses. He may retort, however, by saying, "If apiary means a place where bees are kept, then a cellar may be an apiary; so may a house, a barn, a clamp, or a shed, for bees are kept in all these places;" but common consent comes to our aid again, and restricts the meaning to the inclosure in which they are kept during their active life. The others are called their "winter quarters." R. MCKNIGHT.

Owen Sound, Ont., Can., Jan. 21.

AUTOMATIC SWARMING.

G. M. DOOLITTLE EXPRESSES HIMSELF IN A HOPEFUL WAY IN REGARD TO IT.

THE following questions have been sent in to me, with the request that I answer them through the columns of GLEANINGS. 1. "It is well known, that, when a hive is full of bees, so that they begin to think of 'lying out,' they will crowd into any empty space which may be about the hive, much sooner than they will go on the outside of the hive. Taking advantage of this fact, suppose that, as soon as the sections are filled with bees, they being well at work, and before the swarming fever comes upon them, we bore a two or three inch hole in one side of the hive, and on the inside of the same put a piece of queen-excluding metal. Next, we will bore a corresponding hole of the same size in an empty hive, cover the same with the queen-excluding metal, and set this empty hive right up against the other, having the bees in it, so that the holes match, and then put a queen-cell in this empty hive. Now the point I wish to know is, will there not, in time, be a new swarm of bees in that empty hive?"

Well, now, this is a new thought, to me at least, and one in which I think there may a benefit arise to the bee-fraternity. That it will work just as it is given in the above question, I have my doubts; for I believe, from what I know of having queens fertilized in the same hive having a laying queen, that, when the young queen comes to take her first flight (if the bees ever cluster about the cell so it hatches, and preserve her till this time), she would, upon returning, go into the main hive and destroy the reigning queen, which would be a loss rather

than a gain. But what is there to hinder our placing an empty comb and one of brood in all stages into the empty hive, placing the comb of brood next the side having the hole in it, the empty comb next, and lastly a division-board? Now place in the queen-cell nearly ready to hatch, and I will warrant the bees from the old hive to go through the queen-excluding metal, take care of the brood and cell, care for the queen just the same as if she were in an isolated hive or nucleus, when in due time she will become fertile and go to filling the combs in this hive with eggs. From all my experience in the past, in raising queens, as given in my book, in having them reared above queen-excluding metal by the thousand, and fertilized and laying by the score, in hives partitioned off by queen-excluding division-boards, while the old queen was doing her full duty below, I am just as sure that this plan would work as if I had tried it and proved the same.

2. "By using the plan which I have outlined above, will it not prevent the original hive from swarming? If so, this will do away with some one to stay at home all the while to watch for swarms during the swarming season, besides proving a bonanza to those having out-apiaries which they wish to work for comb honey."

Well, as I said before, I do not think it would work as the questioner gives it; but by using the suggestion given, as I have explained, I see no reason why it should not stop swarming entirely. As soon as the young queen gets to laying, or before, if the old colony is very strong, take more combs of brood from it and fill their place with frames of foundation or frames of comb, putting the brood, thus taken out, over in the hive having the young queen. Sections should now be placed over the part of the new hive where the brood and combs are, so that, in no case, the bees lack for room to store all the honey there is coming in; and I would have these sections, in every case, filled with foundation, so that the bees would have no excuse for any desire to swarm, by being loth to build comb. Occasionally, or as often as the out-apiary is visited, move more frames of brood over to the new hive, putting frames of foundation in the place of the frames taken each time till the new hive is full, always putting on sections as the bees seem to require. If I am correct in thinking that the above will do away with swarming, we shall have something of great advantage, at least to all those working out-apiaries.

3. "Will a colony thus managed make as much honey as they would had they been kept in the old hive, and by some means not allowed to swarm?"

If we had that "*some means*" which would allow the bees to work with a will all summer long, with no desire to swarm, then I should say that they would produce more honey in the original hive, and with only one queen; but inasmuch as bees are, as a rule, determined to swarm, where worked for comb honey, it looks to me as if the above would give more honey than could be obtained either by letting them swarm, or so throwing them out of their normal condition by manipulation that swarming can be prevented. All cutting of queen-cells, caging of queens, etc., to prevent swarming, seems to put the colony in an abnormal condition, so that the work which they do while so placed seems to be done with a protest; hence it often happens that the season is mostly consumed by the bees sulking the time away, instead of their working with a will; the result of which is a small crop of honey, of a poor quality.

If the above is of any benefit to any, they can thank Mr. H. Sawyer, of Burlington, Iowa, for the original thoughts in the matter, for it was he who asked the questions. G. M. DOOLITTLE.

Borodino, N. Y., Feb. 2.

THE BRANTFORD INTERNATIONAL CONVENTION.

A FORMAL INTRODUCTION TO ITS MEMBERS.

YOU will remember, in my report of the International Convention, at Brantford, I said that I would introduce the members of the association to the readers of GLEANINGS. In accordance with that promise, with my very lowest bow, hat in hand, I present to you one by one the members of the International Bee-keepers' Association. I leave it to you to say if they are not an interesting lot of people. A goodly number of intelligent faces are among the lot—yes, lawyers, doctors, ministers, editors, statesmen, presidents of bee-associations, and others of no mean calling, grace the lot.

Had it not been for that "big wall," I should probably have taken some views of the bee-keepers with my camera (which, you will remember, was in safe keeping in the custom-house office;) but I don't know that I am so very sorry, after all, because the city photographer has given us a very much better picture than I could have taken.

About the middle of one of the sessions we adjourned, in pursuance of the call of the artist, across the street, and stationed ourselves in front of the City Hall, in pretty much the attitude shown on the opposite page. One of the most difficult things in photography is to arrange a large group; but our artist succeeded admirably, we will all agree. The day was cloudy, and the light was soft and subdued. It is almost impossible to get a good outdoor group photo in the sunlight by the modern quick-working dry plates.

The picture opposite is a very much reduced reproduction of the original photograph; but it shows sufficiently well the individuality of each of the bee-keepers. This engraving, like all others of its class, must not be held closer to the eyes than 15 inches.

As I look over many of the faces, pleasant memories are recalled, and the names that I could not remember are all brought back to me now. I can not refrain from pointing out in print a few of the faces. Well, there is Secretary R. F. Holtermann, No. 1. To him belongs very largely the credit of the success of the convention, both in numbers and in enthusiasm. It was he who had previously made arrangements with the photographer for this beautiful picture. Just back of him is our genial friend J. B. Hall, No. 20, of thick-top-bar fame. And there is R. L. Taylor, the lawyer and statesman, No. 21. I wonder what he is looking away up in the air for. Is he lining a bee? Geo. H. Ashby, No. 22, is considerable of a bee-keeper, and quite a fun-maker at conventions. No. 23 is our friend Martin

THE BRANTFORD INTERNATIONAL BEE-KEEPERS' CONVENTION.

Emigh, a name quite familiar to Canadian bee-keepers. I had the pleasure of meeting him, I think, at the congress of bee-keepers in New Orleans. Mr. G. Sturgeon, No. 25, is the man who likes the A. I. Root chaff hive, and does not want any thing better for wintering. And there is our old friend W. F. Clarke, No. 26, formerly editor of the *American Bee-Journal*, and now president of the Ontario Bee-keepers' Association. He has been long in the field, and is one of the veteran bee-keepers and writers. Yes, and there is the president of the American Bee-keepers' Association, Dr. A. B. Mason, No. 27, as sober as a deacon, but ready for a joke, I guess. It was with great pleasure that I renewed the acquaintance of F. H. Macpherson (No. 29), who is now practically editor-in-chief of the *Canadian Bee Journal*, and manager of the supply department of the D. A. Jones Co. F. A. Gemmell, No. 30, is a bright Canadian bee-keeper. It is he who, I believe, gave me such a friendly grip of the hand, and inquired after those Vandeusen metal corners. No. 24 is C. P. Dadant, the secretary-elect of the International Bee-keepers' Association. If there are any ones who know how to produce extracted honey, or make the finest foundation, they are our friends the Dadants. Mr. J. T. Calvert, No. 31, is business manager here at the Home of the Honey-bees. Prof. Cook, No. 14, looks as if he might be in a heated debate. His eyes and features have an intenseness not seen when he is more at repose. Like your humble servant, No. 33, he is evidently sitting in an uncomfortable position. No. 17 is Mr. Wm. Couse, who has very kindly furnished me the names of some of these faces. He is secretary of the Ontario Bee-keepers' Association. No. 61 shows the genial quiet face of our friend S. Corneil, who will be remembered by our readers by his scholarly articles which have appeared occasionally in our columns. No. 51 is R. McKnight, one of the prominent Canadian bee-keepers, and one who, like our friend Dr. Mason, has a particular talent for getting up fine honey-exhibits.

Dear me! There are so many faces that I should like to speak of in particular that I must stop at once. All I can do now is to give you the list of bee-keepers as they were furnished me.

1. R. F. Holtermann.
2. C. McNally.
3. Mrs. C. P. Dadant.
4. Mrs. Martin Emigh.
5. Mrs. G. Sturgeon.
6. Mrs. Dr. Mason.
7. Mrs. John Yoder.
8. Mrs. F. H. Macpherson
9. Mrs. F. A. Gemmel.
10. Master Gemmel.
11. Mrs. J. T. Calvert.
12. Mrs. E. R. Root.
14. Prof. A. J. Cook.
16. R. L. Meade.
17. Wm. Couse.
18. A. McInnis.
19. Jas. Armstrong.
20. J. B. Hall.
21. R. L. Taylor.
22. G. H. Ashby.
23. Martin Emigh.
24. C. P. Dadant.
25. G. Sturgeon.
26. W. F. Clarke.
27. Dr. A. B. Mason.
28. John Yoder.
29. F. H. Macpherson.
30. F. A. Gemmel.
31. J. T. Calvert.
32. T. Ruddle.
33. E. R. Root.
35. C. W. Culver.
38. Wm. Goodyer.
41. Mr. Schantz.
42. Elias Mott.
44. Wm. Hill.
46. Mr. Schantz.
48. G. W. Barber.
49. A. E. Hoskel.
51. R. McKnight.
52. J. B. Aches.
53. L. J. Mullock.
54. Wm. Hislop.
55. D. Anguish.
56. O. L. Herschiser.
60. Dr. A. E. Harvey.
61. S. Corneil.
62. Mr. Birkholder.
63. N. Smith.
64. M. B. Holmes.
67. Charley Culver.
68. T. Birkett.
69. Master Birkett.
70. J. R. Howell.
72. J. A. Foster.
74. G. Howard.
75. C. Brown.
78. John Newton.
79. Jacob Alpaugh.
80. A. Pickett.
85. G. H. Morris.
86. Arthur Laing.
87. Ira Burrows.
88. C. Flanders.
89. J. R. Bellamy.
90. R. H. Myers.
91. J. Myers.
94. Mr. Hamilton.
98. E. Schultz.

It is to be regretted that there were not more ladies present. President Mason said he took his wife along to keep him straight. I do not know whether bee-*men* are disposed to depart very much from the rectilinear, in the absence of their wives or not; but I do know that the more ladies there are present, the better the convention. Get the ladies to attend, and the men will be sure to be on hand. ERNEST.

AN INDUSTRIAL SCHOOL CHINA.

A LETTER FROM ONE OF OUR MEDINA BOYS.

THE following letter comes to hand from a young friend who was once a pupil in my Sunday-school class, and he afterward worked at different times in our establishment. Remembering our ways and methods of setting boys and girls at work here, he has formed a project of starting something similar, with the view of securing education and skill in the mechanical arts at one and the same time. The latter is also expected to assist in defraying the expenses of the pupils while getting an education. With this preface we will let "Harry" tell his own story to the readers of GLEANINGS:

Dear Mr. Root:—Some time ago I wrote you in regard to an industrial school, and I have since often wondered if you would feel that you could introduce the subject through the columns of GLEANINGS, to its many readers. Why do I choose GLEANINGS? Well, it is because it is one of the few publications which particularly attract my attention, from the decided Christian influence its main articles have; and feeling pretty sure of a hearty approval in the effort for such a school on the part of yourself.

Our mission-school system is carried out in this way: At a center we have a high school and a theological school. Scholars are drawn from day-schools at the other stations of the mission, for these. We experience great difficulty in holding in our day-school those boys who have proved bright and attractive, as their parents can not afford to keep them in school after they reach an age at which they can be apprenticed out to a trade. Now, our thought is, to establish an industrial department in connection with our day school, in which these boys can spend half of their time learning a trade as well as obtaining an education, and, in a measure, partially supporting themselves. We can thus hold and instruct them until they are old enough to show their qualifications for further advancement, selecting such as will be suitable for teachers, and giving them the benefit of the high school and seminary, by the aid of scholarships, which many Sabbath-schools are yearly providing for the support of one or more young men; and we are this year ordaining our first of the graduates as native pastors, for the native churches are calling for native pastors.

This is, in rough, the plan we have in mind. We need, first, money for buildings. I think $500 would put up temporary buildings; but as we shall not have rent land, we should like $1000 for substantial buildings. Friends have loaned or given some carpenter tools, and we have an upright drill and small turning-lathe. What we are desirous of is a few wood-working machines, a blacksmith's and tinner's outfit. These three are all we shall go into at present. If we can raise $1000 for buildings we can add a printing-outfit, which will be at our disposal, without doubt, as our mission has a large plant of this description which will be split if we can find accommodation for a portion of it.

Now, then, dear friends, can and will you come to our assistance in this scheme, with which we are sure your heart is fully in accord, and thus help on the work of education in which we see a direct way of reaching many children? In the end many people will receive the word of truth and life, which none of the foreign missionaries can ever hope to carry to the masses with any thing like the success the Christian natives will thus be able to do. On behalf of the mission, and Tientsin station in particular, I beg to re main Yours very truly,

Tientsin, China. H. J. BOSTWICK.

I may add, that our own Sunday-school subscribed $22.18; and as I had agreed to match whatever they raised, this made $44.36. Twenty dollars more were subscribed, making $64.36, which we take pleasure in forwarding to friend Harry this 10th day of February, 1890.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE VANDEUSEN METAL-CORNERED FRAME THE THING DESIRED.

I see that you will soon have the Vandeusen metal-corner reversible frames, to space 1⅜ inches, ready. This is what I want. This last season I used your Simplicity hives under different managements. I used part with the 10 frames. This gives a spacing of $1\frac{17}{40}$ inches, which is $\frac{1}{20}$ more than 1⅜—too much. I used others with 11 frames. This gives a spacing of $1\frac{13}{44}$ inches—$\frac{1}{22}$ less than 1⅜—too little—but gave me better combs and better results every way than the 10 frames, while I used still others with eight frames to the hive, spaced 1⅝ inches, which gave me by far the best results of any. Thus I am led to the conclusion that an eight-frame hive, spaced 1⅜ inches, is about right. I am thoroughly convinced that a reversible frame is best.

Concord Church, W. Va., Jan. 1. T. K. MASSIE.

Friend M., when you get down to fortieths of an inch, you are getting it pretty fine; but we are very glad indeed to have the result of your repeated experiments. No doubt you are about right.

PERFORATED ZINC HONEY-BOARD IN SWARMING; A GOOD SUGGESTION.

As swarming time will begin in the South in a few weeks, I thought to say to those who practice natural swarming, that the perforated zinc honey-board is the one thing needful. When two or more swarms cluster together, just take a hive with solid bottom, no entrance; lay the honey-board on top; shake the cluster on it. The bees will run down into the box, leaving queen and drones on top. The queen, in trying to get through the perforations, will limp her back, thus raising the wings from her abdomen as if on purpose to be grasped and caged. Perhaps you may say the bees will not thus run in and leave their queens; but practically they do it every time. You see, I have hived something like a hundred swarms that way, without a single failure. When your queens are all caged you can divide the cluster into as many swarms as you wish, letting a queen run in with each swarm in hiving. If the cluster is too large for one box, use two or more boxes in catching the queens.

If not ready to hive your bees at once, lay a queen on top of the box or boxes, wire cloth down, until ready to hive; or, better, drop her, cage and all, among the cluster. If the queens are taken entirely away, the bees will rema n in the box from 15 minutes to two hours or more. If they have clustered, and failed to find their queen, and have gone back, they will break the cluster quicker at each successive swarming, until, after issuing two or three times, they will not cluster at all without a queen; but after a vain search they will return to the parent hive. E. S. ARWINE.

Los Berros, Cal., Jan. 18.

I feel quite sure that you can get the queens in just the manner you mention, and the suggestion is doubtless quite valuable.

HOW TO MARKET CHUNK HONEY.

There are various ways of disposing of chunk honey, and we have found the following to be a very good one. When we can not conveniently get the tin pans, such as Mr. Root used to sell for that purpose, we buy the two-pound wooden butter-plates, such as grocerymen retail butter in, for which we pay 23 cents per 100. In these we lay a sheet of thin writing-paper. Bring the honey into a warm room some time before cutting, and cut it up with a sharp and *very warm* knife into different-sized pieces, then weigh and mark the price on each one. This honey looks well, and retails readily at the groceries at the price of honey in sections, and will pay the bill there while it lasts. In this way we dispose of all the nice *new* drone comb built in extracting-frames. We don't like to use drone combs for extracting from, because bees will not fill them as readily as worker comb.

Barry, Ill., Jan. 17. MRS. M. A. SHEPHERD.

Thanks, Mrs. S. We have sold chunk honey in the way you describe. A short time ago we received a consignment of 2000 pounds of comb honey. The shipper was so careless as to put the sections in cross-wise of the car. As the honey came by freight, every time that car was bunted on to by the engine or other cars, it knocked some combs out of the sections. If these sections had been placed lengthwise of the car, the concussions would have had little or no effect, as will be readily seen. Well, when the honey reached us, almost every case was daubed and leaking; and while some cases had no sections broken, the majority had several. In some instances the cakes of honey were lying on their sides. What sections were not broken were literally besmeared. We brought the honey into our wax-room, had the girls wipe off each whole section with a moist rag, wash out the cases, and return what sections were unbroken. The broken combs, we put into wood-

en butter-dishes. When we came to weigh it all up we found we had something over 600 lbs. to market. We sent some of it up town to the stores, and told them to sell it for 2 cents less per lb. They were retailing comb honey at 18 cents, consequently they sold the broken combs in the butter-dishes for 16. Calling around a few days afterward we found that it was all gone, and some of the grocerymen sent down for more. The result is, that it is now nearly all sold. People have a great liking for chunk honey. They say it is like the honey of their fathers. They imagine that it tastes better. Now, it would not be at all surprising if sections partly filled, cut out and put into butter-bowls, would sell better than if put on the market left in the sections. We should be glad to have our readers try the experiment, and report how it works. E. R.

SAVING SOULS AS WELL AS MAKING MONEY.

How often have I thanked God that I started in the bee-business! for by so doing I have learned that it is not only to make money, but to win souls for Christ, which is far better. How I wish that all employers would set apart ten minutes of ten hours to the worship of God, and have over their doors that grand motto, "In God we trust"! This morning as I sat in prayer-meeting and class-meeting, my mind was carried back two years when our little church in the grove was rejoicing because the Lord was answering our prayers by bringing in the young of our Sunday-school to his blessed fold. Eleven young workers were added to the church. How my heart rejoiced to see *nine* of that number in class this morning, and hear the testimony of these young Christians! My mind is also carried back to the time when a father steps off the cars and is met by his son, who says, "Father, if you could have only one wish granted, what would that be?" Almost staggered by such a question, the father's mind runs over many different things; but in a moment he responds, "Connie!" Yes, Connie, or Blue Eyes, *was converted.* Why, I read that number of GLEANINGS with tears of joy. I do not know why, unless it was because there is a "blue eyes" here in Paxinos as well as in Ohio, of almost the same age, who at the same time threw off the mantle of sin and put on the armor of the Lord; and may God grant that Blue Eyes, Brown Eyes, and *all others* may "love righteousness and hate iniquity." I am one of your A B C scholars only *four years old*, but *twenty-five* in length of life. GEO. W. COOK.

Paxinos, Pa., Jan. 19.

Amen, Bro. Cook; and may the Lord help us to remember that, after these loved ones have been started in the way of righteousness, they need to be looked after and prayed for, that they may be kept going, and that they may hate iniquity, until the time shall come for them to be called home with all the rest of those who love righteousness.

HAVING YOUR NAME PRINTED ON YOUR PAPER AND ENVELOPES.

Friend Root:—I wish I could say something that would induce every one who writes letters, to get their address printed on either paper or envelopes. We get a number of letters every year without signatures, or so poorly written that they can not be made out. One letter came containing $14.00, and no signature; and another, requesting an estimate on a lot of goods, also no name attached. The writers of these letters no doubt blamed every one but themselves. Every one makes mistakes; and knowing this we should take advantage of all reasonable means tending to lessen them. Getting three to five hundred sheets of paper at once, with address printed on, is much cheaper than the same amount with no printing, when purchased a few sheets at a time. Almost every village has a printing-office where they will be glad to give you prices so low as to astonish those who have not tried it. It is not necessary to have a large showy letter-head. Just have your address in small type, on the upper left-hand corner. Try it, and save money and vexatious mistakes. M. H. HUNT.

Bell Branch, Mich., Jan. 25.

We indorse every thing you say, friend Hunt. The man who can not afford to have his correct address printed somewhere, just as it ought to be, on his stationery, deserves to have trouble. In our office there is an unceasing amount of trouble, and many quarrels coming up, just because we can not, even by the aid of our experts, read the writing. Of course, you can not all well have type-writers with which to print your letters; but you surely can, even the juveniles, afford the few cents needed to have your full name and postoffice printed on your writing-materials. If your freight and express office are different from your post-office, just one line will tell us that; and, oh my! what an amount of trouble it will save on both sides, if we can always have these things absolutely settled by hunting up any letter we have had from you!

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

What is the usual price charged for transferring bees from box hives? C. G. S.

Atoka, Tenn., Jan. 25.

[The usual price charged for transferring is $1.00 for a single colony. If you can get a job of 10 or more, 50 cts. might be enough.]

OPEN-SIDE SECTIONS, OR NOT.

Do you use the open-all-around section? If you do not, could you produce as large or larger crops of honey by using sections open all around?

[This question was answered in the Question-box. Those who used the open-all-around sections liked them; and those who had not used them were prejudiced against them, as a rule. At the Michigan State Bee-Keepers' association last month, some very conclusive testimony was brought forward, showing that the open-side sections were better filled. Some very pretty samples were shown in proof of it.—E. R.]

A COMPARISON OF THE JAPANESE AND COMMON BUCKWHEAT, WITH THE DIFFERENCE GREATLY IN FAVOR OF THE JAPANESE.

I sent for one bushel of Japanese buckwheat, and sowed it the 27th day of June, and cut it Sept. 2d. I sowed 1½ bushels of common buckwheat the same day. The Japanese made 42 bushels, and the common only 18. If I had sown all Japanese I should have had 100 bushels in place of 60. The Japanese was two weeks earlier than the common.

Salamonia, Ind., Jan. 20. D. K. KNOLL.

ALFALFA CAN NOT BE PLOWED UNDER.

Don't assure anybody that lucerne (alfalfa) can be plowed up as readily as clover. The roots are much harder, and will grow after being plowed under. They are carefully picked out of each furrow as it is plowed, and carted off. REV. D. PEEBLES.

Bountiful, Utah, Feb. 1.

BEES FIGHTING AMONG THEMSELVES, AND THE REMEDY.

I see in January 1 GLEANINGS (page 22), that D. D. Burrows speaks of his bees fighting among themselves. I have, at three different times, had a colony of bees become queenless when there were neither eggs nor larvæ to raise a queen from, and they would fight till the ground was covered with dead and dying bees, when a frame containing eggs and brood put a stop to all the trouble, and they went to work all right. N. A. E. ELLIS.

Rail, Mo., Jan. 15.

WIDE TOP-BARS AND NO HONEY-BOARD.

I have never used a slatted honey-board nor separators. I ship my honey to a city market, and it always brings the highest price. The top-bars of my frames are ⅜ thick and one inch wide, spaced ¾ in. apart, with a bee-space above the frames. I use a chaff hive, and set the super on the brood-chamber, without any kind of honey-board between it and the frames. There are a few brace-combs built between the frames and super, but only a few. There has never been a section with brood in it. WILLIAM WITHROW.

Paint Valley, O., Jan. 22.

[If your top-bars were a little thicker you would have *no* brace-combs.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 154.—*a. What size of brood-nest do you prefer? Is it material whether the brood-nest is cubical or not? b. Give your reasons briefly for adopting the brood-nest you are using.*

a. I use a 10-frame Simplicity - Langstroth. b. Because the majority use it, and I am anxious to see a standard frame used by all.

Louisiana. E. C. P. L. VIALLON.

Seven to eight of our frames in the spring; six afterward; not material. b. Experience. In the spring, give as many as the queen will fill; afterward, as many as she will keep full.

New York. C. P. H. ELWOOD.

a. About 2000 cubic inches. For the purpose of a brood-nest alone, without any other consideration, I do not think the shape of the brood-nest is material. b. Because I think it is about the right size, and because it suits me.

Illinois. MRS. L. HARRISON.

a. 12¾x12¾ inches inside the frames; 8 frames to a hive. I think it is of less importance than some of us imagine. b. I could not do it. I presume it was a matter of accident with me at first, as it is with most bee-keepers.

Ohio. N. W. H. R. BOARDMAN.

Eight Langstroth frames. Twelve Gallup. New Heddon. I think the latter best for comb honey. The others are good also for comb honey, which I believe pays best here.

Michigan. C. A. J. COOK.

a. About 1600 cubic inches, or nearly a foot cube. b. Because bees can be managed so as to secure the largest cash profit from such a brood-nest, *in my opinion.*

New York. C. G. M. DOOLITTLE.

a. Ten or more Langstroth frames. If I worked for comb honey I should prefer 8 or 10 such frames. b. The first reason is, because it was the one almost exclusively used in this locality when I came here, and I bought my first bees, on coming here, in such a hive. If I make any more they will be larger.

Ohio. N. W. A. B. MASON.

a. Langstroth. I suspect cubical might be a little better for bees, but not for the bee-keeper. I adopted it because Vandervort, the foundation-mill man, when he left Marengo, sold out his hives to me, and it is so nearly the Langstroth size I have never changed, although I may yet.

Illinois. N. C. C. MILLER.

a. An 8-frame Langstroth hive. Other things being equal, I should prefer a round or cubical brood-nest as being the best shape to economize the heat of the bees; but the advantages are only slight. b. I prefer the shallow frame, on account of greater ease of manipulation. It makes the hive more spread out, and less likely to be upset; there is less oscillation of the combs in moving the hives about.

California. S. W. R. WILKIN.

a. One holding 12 Gallup frames. Probably bees would cluster to better advantage in a hive approaching the cubic form; but a slight variation from this form, such as the Gallup or L. hives, have given satisfactory results in wintering. b. My reason, first, for using the Gallup hive, was, that I bought a lot of bees in them; and my reasons, last, are, that I have tried nothing that suits me as well.

Wisconsin. S. W. S. I. FREEBORN.

Seven Simplicity frames. I think the shape which this gives is better than the same space in cubical form would be. A small and nearly globular nest in one end, in early spring, seems to be a little better located than it could be in a cubical hive; and expansion endwise is simpler than taking possession of new frames. Same of the winter nest. b. I grew into it in the course of work from year to year.

Ohio. N. W. E. E. HASTY.

a. 16¾ long by 13¼ wide by 11 deep. I believe the nearer cubical the better. b. Because I prefer a short frame; and as 11 frames require the proper length of box to take on my clamps holding 1-lb. sections; and this brood-box seems to contain just about the proper amount of comb surface for the queen to fill with eggs and keep full by the time clover blooms here in this locality. Other localities might require larger or smaller brood-nests.

Vermont. N. W. A. E. MANUM.

a. I prefer a large single-story hive, allowing the bees themselves to size the brood-nest. This applies, of course, to the production of extracted honey. It would be difficult to give brief reasons for my preference, and I do not think it necessary.

Such hives are not manufactured, and the tendency of the entire bee-world is toward other styles of hives; but this doesn't prevent my using such hives as have given me the best practical results.

Cuba. O. O. POPPLETON.

I use the Quinby standing frame, which is 10x15 inches, inside measure. It is equally perfect, whether you use one frame for nuclei or 16 side by side, as necessity may require. For boxing, I use 6 and 7; for extracting, 52; and for wintering, 6 and 7 combs. If I were obliged to adopt a fixed size of brood-nest I would use eight of those frames. I prefer this frame because I can adapt the size of the brood-nest to the strength of colony, to the different seasons, and to all localities.

Connecticut. S. W. L. C. ROOT.

If the propagation of bees and wintering only were my object, then I should prefer a cubical brood-nest, because their stores and cluster are more compact and comfortable, and the cluster can move gradually upward where it is warm, as their stores, surrounding them, become consumed. But as honey is my object, and as I know that bees can be wintered safely in a shallow frame, I prefer the Langstroth style of brood-chamber, because I know that I can produce a larger crop of honey, the larger the surface above the brood-chamber.

Ohio. S. W. C. F. MUTH.

a. The brood-nest of my hives usually contains either 1276 or 2552 cubic inches in the shape of either one or two brood-chambers 11½x18½ inside, and 6 inches deep. It makes little or no difference to the bees whether the brood-nest is cubical or not; and it is much more advantageous to the bee-keeper to have it shallow. b. Because it gives a control over the management of the bees and the disposition of their stores which in other forms of hives is not possible, or can be gained only by numerous appliances and greatly increased manipulation.

Illinois. N. C. J. A. GREEN.

a. We prefer the large Quinby suspended frame (see our answer to No. 151). Our hives can accommodate 11 of these frames. b. According to our experience, a comb longer horizontally is better than a square one, for the queen, in spring, is unable to lay her eggs in a regular disk. She wants to lay in circles; but, as the lower part of the disk covered with brood is cooler than its sides, the workers refuse to descend, and the disk is flattened at the bottom and enlarged at the sides, taking the form of a horizontal oval. Father Langstroth was, therefore, well prompted when he adopted the horizontal frame.

Illinois. N. W. DADANT & SON.

We favor a large hive. Our Langstroth hives hold 8 frames. For comb honey we use just the 8 frames for a brood-nest; but for winter we give them two sets of eight combs—one set over the other, with nothing between the upper and lower set. For extracting we prefer to use the L. frames, three stories high, 24 frames in all. We raise but little comb honey, and that at home. As our comb-honey colonies are worked with one set of 8 combs, we take another set of eight combs full of honey from a third story of a colony that is run for extracted honey, and put it on the comb-honey colony to winter it. Then they both have two sets of eight frames. But for extracting we prefer our tall frame, which is 21 by 13 inches, 21 high, 13 wide. In our shot-tower hives we use two sets of nine of those tall frames, one set above. The others get more honey per colony; winter better and swarm less.

Wisconsin. S. W. E. FRANCE.

We prefer a brood-nest that can be contracted or expanded. It is not material for the brood-nest to be of a cubical shape. b. The shallow brood-chamber was adopted in our yard for the following reasons: They are easier to manipulate than any other style; bees can be driven from an entire case in a few minutes, and the case be carried to the extracting-room. The same can be returned without exposing combs to robbers, and bees are not excited to anger as by the old brush-and-bust-'em method. The shallow brood-nest is also just the thing for making artificial swarms. In fact, we can not here enumerate half the advantages.

New York. E. RAMBLER.

If the brood-nest is to be kept one size all the year round—that is, where contraction is not practiced—the capacity of eight Langstroth frames is my preference, and I have used them in considerable quantities, varying from six to twenty-four. I do not think it a matter of much importance for wintering, what the shape of the brood-nest is. The theory that the queen will lay more eggs, and that the bees will winter better in a cubical or tall hive, is only a theory. It is not so at all. If any thing, it is just the reverse that is true. I have never had my bees winter so well in any hive as in very shallow, long, flat hives. Were I going to start an apiary now, and adhere to the suspended frame, not using my divisible brood-chamber, and not caring to have my hives and frames of any standard size, the same as others use, I would make an eight-frame hive taking a frame just 4¼ inches longer than the standard Langstroth, and enough shallower to leave it the same capacity. Of course, bees keep a little warmer in a shallow hive, because they will be closer to the top of it, not having a great open space above them to heat, and heat does not pass away sidewise or laterally as rapidly as it does upward. The bees move slowly in a lateral direction as they use up the stores. After all, it makes but little difference about safety in wintering, for bee-diarrhea is the sole cause of our winter losses, and the depth of the frame or hive does not cause bee-diarrhea. Still, the flat hive is the best. They are ever so much the best in which to store surplus honey, either comb or extracted, and such frames manipulate more easily. My reasons for adopting the new brood-nest I am now using with the small shallow frames, is, that I use two sets of frames to one brood-chamber; and with a horizontally divisible brood-chamber I get the advantages of both deep and shallow hives. By interchanging the brood-sections, I get more surplus comb honey. I can keep the brood up to the surplus honey receptacles all the time, and I do it with emotion, so to speak. It is one of the correct theories that is quick, safe, and easy to practice. That is the beauty of it. There are many correct theories which are practically false or worthless, you know. There are a dozen other reasons for preferring this divisible brood-chamber, but I must not take up any more room in this department.

Michigan. S. W. JAMES HEDDON.

OUR HOMES.

Come unto me, all ye that are weary and heavy laden, and I will give you rest.—MATT. 11 : 28.

PERHAPS no other verse in the Bible has been more upon people's tongues, and oftener quoted, than this simple little verse. In fact, I think I have used it for my text before in these Home Papers. What I wish to consider now, however, is just this: Is the promise true? Perhaps many of my good friends who love Christ Jesus may almost feel hurt to think I should ask such a question. Well, I have asked, just because I am inclined to think there has been, or is, a good deal of skepticism in regard to it. You will notice, that the conclusion promises *rest;* and when *Jesus* promises rest, he means it, I assure you, in the fullest sense of the word. Why, then, do we go through life so *weary*, and bearing burdens so *heavy?* I think it is because we refuse to accept the plain, simple invitation. A good many say that we shall have *comparative* rest; that we need not expect to be free from the cares and responsibilities of life—at least, not in *this* world. Very likely this is true. But, my friend, suppose you have broken off from some sinful habit. Suppose, if you choose, you are a slave to tobacco. You feel that it is wrong, and you stop using it. You stop from a sense of duty, proposing to fight it out. Is there any thing in the Bible that encourages you to believe that you have a right to expect that you can be *delivered* from the dreadful hankering and longing for the accustomed stimulant? Why do I ask such a question? Because of the differences of opinion. Even our good friend who wrote the Tobacco Manual—one who has been for years a faithful servant of Christ Jesus, is at least not quite settled in regard to the matter. And now I want to allow him to speak on this subject:

ARE WE TO EXPECT THAT GOD WILL, IN ANSWER TO PRAYER, DELIVER US AT ONCE FROM SINFUL HABITS?

Bro. Root:—I want just a word with our good friend at Woodburn, Ill., Mr. Muhleman, on a single phase of the tobacco question. Brother Muhleman seems to carry the idea that any person can control the desire for tobacco, whether acquired or inherited, or both, by asking help of God. I do not wish to enter into any controversy on the subject. It would be like entering again upon a controversy concerning the nature of "original sin." I simply want to say that I have thought over that phase of the subject for more than fifty years, with single and individual instances before my mind—in all not exceeding, perhaps, a dozen or twenty. And then, on the other hand, I have met and talked with thousands who give the best of evidences of being Christians, who tell me that the desire clings to them, and they have to fight it every day and hour. Some tell me that the desire for tobacco, even though they have not used it for years, on seeing or smelling it, comes on them with almost irresistible power—the Bible would express it, "Like an armed man."

In considering this subject, I take into the account the will power of man, its influence on habits, passions, and tastes. I also take into the account the tendency of liquor, tobacco, and opium to destroy the will power—tobacco more than liquor, and opium more than either. Arranging these testimonies against each other, at least a hundred against one, I dare not take the testimony of the one, and reject the testimony of the hundred. Hence, in my manual on tobacco, also in my lectures and newspaper articles, I do not refer to what is often called the "Murphy doctrine," though I do not deny it, nor even ignore it. I wish I could see many more instances of it. Perhaps in the generations following, more will be witnessed. I have three sons in the ministry. If they reach the age I have attained, some of them may bear testimony on this subject, such as I have not been privileged to witness. N. A. HUNT.

Dear brother, you do not know how earnestly I have pondered over this very matter which you bring up before us. I have been compelled to admit, that, while God did in some instances seem to give instant and perfect emancipation from sin in a special direction, at other times I have known good earnest faithful followers who seemed to be called upon to bear the consequences of their past sins in just the way you have mentioned. Paul besought the Savior to remove the thorn; but in answer he was given grace to bear it. When I gave you that talk about loving *righteousness* and hating *iniquity*, I had this thought in mind; and my conclusion then was, that the reason why deliverance does not *oftener* come is because we still cherish a lingering love for clinging to the evil, and so the memory continually haunts us. We are like Lot's wife—prone to look back, and go over, in memory, the forbidden sin. Since then, however, I have had a new experience of my own that I wish to tell you about to-day.

At different periods of my life I have had experience in being lifted *at once* from the miry clay to the solid rock of Christ Jesus; and I am sorry to say that I have *also* had *experience* long afterward, that convinced me that we must not be *too* sure that we are thoroughly emancipated. When I wrote that little paper in regard to the machinery of the universe, more than once the thought came into my mind of the special line of machinery manipulated by the *prince of darkness*, with the express design and plan of leading souls to ruin. There is something fascinating in gazing into the crater of a volcano; and this love of looking down, or, if you choose, going down, into the very jaws of death (and a horrible death too), has prompted men to let themselves down by ropes, in order to study the boiling and seething caldron of melted lava. The disposition is very strong in my own heart to want to see and know, not only all about the workings of the slumbering fires of the interior of our own earth, but there is something *terribly* fascinating to me along some lines of the machinery of Satan, even when good sense bids me turn my back and hasten away. Something in my nature makes me inquisitive to know more about these dreadful dangers, even when I know that to *look* is sin, and to dally may be fatal.

Some time ago a little speck of cloud began to dim my spiritual enjoyment. I do

not know that I can call it even a speck of cloud. Some days I thought there was not any cloud at all; and at other times I felt sure there was one clearly visible. Even if I did not see it I felt that my faith was surely being *dimmed* just a little. I did not enjoy prayer all alone by myself as I usually do. In a few days more it would be gone, and I smiled to think I had imagined that I was slipping back. But pretty soon I felt more sure than ever that this cloud was an indication of danger. Perhaps some may say, "Why, Bro. Root, that sounds a little bit ridiculous from our spiritual *teacher*. How could it happen that *you*, who have so frequently and vehemently proclaimed Christ Jesus as the Savior of the world, should so far forget to *practice* your own *preaching* as to omit to take this matter to the feet of Jesus?" And this obliges me to make *another* confession, still *more* humiliating. When the cloud was new and strange, it oftentimes showed a sort of silver lining, and it changed about in unexpected ways so that I rather *disliked* to have it taken away. Another thing, when I prayed about it, it did not seem to make very much difference. A young friend who was rescued from intemperance and intemperate habits went and got drunk one night after he had been to prayer-meeting. Yes, and in that very prayer-meeting he prayed that God would keep him from his besetting sin. When I found him in jail he told me that, although he had asked God to help him, he *didn't* help him a *bit!* Almost every one smiles on hearing this sad story. Why do they smile? Well, I suppose that every one, almost, says in his heart, if not aloud, "He did not pray *honestly*. It was the prayer of a hypocrite. If he really *meant* it, why did he go from the prayer-meeting to a place where he could get intoxicating liquors, or where he would find companions who would furnish it?"

Now, in view of the above, was it not useless for me to pray when I was quite certain that I should sin again, when temptation came? Poor Albert said that he had tried praying for God to help him. God alone knows the heart, and he alone knows whether Albert was really hungering and thirsting after righteousness when he uttered that prayer, or whether the hungering and thirsting was in the main for the forbidden stimulant.

Is it true, that, while we are conscious of this iniquity in our hearts, we had better stop praying? *Not so*, my friend. By no *manner of means* stop praying or stop taking part in any religious services. Your old friend Uncle Amos has had some experience in this line, and it was in the hope that it might be helpful to you that he is penning these lines to you to-day. My dear friend, if a little speck of cloud (sin produces clouds of many hues and kinds) has darkened *your* spiritual sight as it did mine, do not, by any manner of means, stay from prayer-meeting, or think of neglecting daily worship. If you can not pray, with your heart and soul in it, as you have sometimes done, pray with all the faith you can scrape up. Do not, under *any* circumstances, let Satan persuade you that it is *inconsistent* to take the name of Christ Jesus on your lips. Most of you know what a great work the Young People's Society of Christian Endeavor has done and is doing, over almost the face of the whole earth. Most of you also know of the "iron-clad pledge" that is a special feature of this society. This pledge is, to be on *hand* and take *part* in some *way or other* (besides singing), at every regular meeting, unless absolutely prevented. There has been a good deal of fault found with this iron-clad pledge. A good many have become offended, and have withdrawn; but those who take the pledge, and keep it, *grow* and *shine*. The very fact that they have given a sacred promise to stand up for the Master, week by week, proves to be a great wall of safety about them. The thought of this iron-clad pledge keeps them from doing a hundred things they might do otherwise, just as the thought that *you* and *I*, my friend, by bowing our heads before the great God of the universe, and asking a blessing at the table, keeps us from doing many things that we might otherwise do. Well, I think that perhaps I had better confess to you that this little speck of cloud that I mentioned did make me feel once or twice as if I should like to be excused, at least for the time being, from family worship. I felt that, if I took up the service, it must be without very much heart in it. Why not go off by myself, and pray over my cold and fallen state? Well, I did not want to do that. I had not become so very bad or so very cold either; for when the thought came into my mind of omitting family worship just once, it frightened me. I do not know how it may be with the rest of humanity; but when A. I. Root voluntarily neglects or skips by his daily petitions to God the Father, he is lost. The bare thought of it makes me shudder. It frightens me. All the wealth the earth can give or furnish—all the attraction that this world has to offer, could not tempt me for one moment to think of living a life without prayer. I have *tried* a life without prayer and without obligation to God. Nearly twenty years of the best part of my life were passed in that state. I never want to go back to it again. Bad as I am and have been, cold and unfeeling as I yet am at times, I never want to live without the daily and hourly glimpse of the approving smiles of my Savior. I *did* pray, or at least I prayed feebly, about this thorn in the flesh, but it did not make very much difference. I began to fear that my spiritual enjoyment was getting to be somewhat of an old story. I presume it was Satan that began to suggest that this new freak of mine had lasted quite a good many years, and that it was nothing particularly strange if I did begin to crave something new. The time was coming for another Home Paper. I have never written a Home Paper yet without a heart in it. Before the time comes, God gives me a message to carry to those who love his holy name and his holy word. A good many times I find, when it comes time to write those Home Papers, there are several things to be fixed up or disposed of. David said, you know, "Cre-

ate in me a clean heart, O Lord, and renew a right spirit within me; then" (after that, mind you) "will I teach transgressors thy way, and sinners shall be converted unto thee." He had learned, as I have, that no spiritual message can be carried to others until his own heart was made clean, and renewed. A good many things began to assail me. When I went into our afternoon prayer-meeting only day before yesterday, a good brother was speaking. His concluding sentence was something like this: He spoke of his comrades of earlier days. Some of them had gone to ruin, and some filled drunkards' graves. Why? Just because they thought they were strong enough to dally with sin. They thought they would go just a little way, just for the fun of it. They did not propose any thing out of the way. They would get just a *glimpse* of these things that were talked so much about; but the end was death.

I thought of that little speck of cloud, and it made me shiver. The wind blew a bit of paper across my path. On that paper something was said about the grand characters and shining lights that all of a sudden had tumbled and fallen. Men who were considered as strong pillars of integrity and purity, all at once shocked the community, and may be the whole nation, by something appalling. The writer said, however, that no great man had ever fallen *suddenly*. No such thing ever happens. The character that the world looked on as great, and beyond reproach, was all the time worm-eaten. The little worm had commenced years ago, gnawing at his vitals. Perhaps he stood before the world fair to look upon for some time after he was only a hollow shell. After his fall, all the world could see that such was the case. Corruption and depravity begin slowly. It is at first only a little speck; but it gets larger and larger. Then my imagination pictured the effect on humanity, and the shock it would give those who had been reading his Home Papers, and perhaps the dishonor that it would throw on the name of Christ Jesus, if *A. I. Root* should, in his old age, say, get cold or indifferent, if nothing worse. "Lord, help thy poor stumbling unworthy servant!" welled up from my lips. But still the cloud hung over my spiritual horizon. It was getting to be a part of me. It was with me when I closed my eyes in sleep, and it was plainly in sight when I awoke in the morning. Sometimes Satan tempted me by saying it was like Paul's thorn in the flesh, and that doubtless God intended it to stay there. But I knew better. We have it in the words of Holy Writ: "Let no man say, when he is tempted, I am tempted of God." Why did I not go to some good spiritual friend of mine and ask him to pray for me? I was ashamed to do so; for, from some strange inconsistency, if I had told the truth I should have been obliged to say that I was not sure that I *wanted* to be any different. Another thing troubled me: Whenever I looked at the whole matter as though it were one of my "neighbors," I began to boil with indignation, not at *myself*, but at my neighbor. The thing that I would not have tolerated for a moment in a neighbor of mine was not any thing particular out of the way when it came to have a lodging-place in my own heart. And this thought troubled me a good many days. "Thou shalt love thy neighbor as thyself." Sometimes in my own life I have prided myself on the fact that I came pretty near doing this. But just *now* the thought was—why, to tell the plain truth, a ridiculous absurdity. I could sit down very complacently so long as the cloud belonged to *me;* but if it hung over somebody else—oh, yes! *that* made all the difference in the world.

A young friend, whom I was once exhorting to come to Christ, said to me something like this: "What shall a person do if he does not *want* to be any different?"

I thought at the time that the expression exhibited a very depraved spirit; but here was I near that very predicament. I had been praying for many days that God would help me to realize and comprehend the sinfulness of sin. I have seen it stated somewhere, that every sin is hideous in the sight of God. I thought if God would help me to see how hideous was this sin, in his sight, I should be freed from its continuance. At the time of my conversion I did get a brief glimpse of the sinfulness of sin. I got, for the time being, a little insight into the way that God looks at sin, so that I could realize just a little how impossible it is for him to tolerate it. And just the contemplation of it for a little time caused me to bow my head in such shame that the tears wet the very ground where I sat. And after that, came deliverance. At present, however, although I seemed to be getting a better view than ever before of the way in which Satan makes inroads upon the human heart, and of the subtile way in which he leads people out of the straight and narrow path, it did not seem to make much difference. I feared that I was getting to be a *hardened* sinner. What shall be done with one who is weary and heavy laden, and yet is so stubborn and contrary—so inconsistent—that he does not *want* rest? Some of you who have never had a hand-to-hand conflict with Satan may think this ridiculous. But I am impressed, that many among my readers know something about just such hard struggles as I have been telling you of. Why do I tell it? Because I want to tell you as I sit here and dictate these words that I have found deliverance. It was on my mind last night when I went to bed; and it was on my mind and conscience when I opened my eyes this morning.

Not very long ago our seven-year-old boy Huber got up in the morning out of sorts. He complained; and because his mamma did not let him have his own way he refused to eat his breakfast. His papa finally looked toward him. I knew he was having one of the same battles that I had fought, oh so many times!

"Why! is our boy a bad boy this morning?"

I looked him full in the face, and waited for his answer. Notwithstanding his fits of temper he is remarkably truthful. He looked up at me; but as there was no other hon-

est course he nodded his head in assent that he *was* a bad boy.

"But you want to be a good boy, don't you?"

The spell seemed to be a pretty bad one this time, and I wondered a little how he would answer. He considered the matter for awhile, but his face did not soften a particle. After some deliberation he shook his head slightly, but yet very perceptibly, indicating that he did not even *want* to be good. His mother replied that he would be good if we would just give him a little time; and, sure enough, after sufficient deliberation he picked up his knife and fork and looked up with a smile, as much as to say, "Now, papa, I want to be good, and I am good."

Well, my case had this difference. It really seemed as if weeks and months were not going to be sufficient time for me to go back and express my readiness to obey—that is, in one particular direction. I had decided a dozen times to tell my wife, and ask her to pray for me—yes, just as I used to do years ago, when I was taking the first faltering steps from darkness into light. The only difficulty in the way was, that she has *now* too much faith in her husband to believe that any danger threatened. I did, however, muster up courage enough to say something like this:

"Your husband is being hard pressed by Satan."

She looked at me a little bit wonderingly, and then replied:

"What, this morning?"

"No, not this morning particularly, but for quite a time past."

She left the room, but did not say any thing more, and did not ask for any particulars. I was rather glad she didn't. I expected she would pray for me. I went out on the sidewalk; and as I breathed the fresh air, something prompted me to speak aloud (it was before daylight had even tinged the east); and as no one in our neighborhood except myself gets up at this time of day, I knew I could tell my Savior aloud what I wished to say, without any danger of being heard. The prayer I breathed, as nearly as I can remember, was this:

"O Lord, help thy servant in his helplessness."

I can not now remember exactly the words I used to express the next thought. I know this, however: The request was in a shape I never put it before. It was more humble. My feeling was, that, so far as any thing *I* could do was concerned, it amounted to nothing, so was not worth mentioning. And it included, also, the thought that all the Christian character that had been built up in years past, and on which I prided myself so much, was of no account; salvation could not come through A. I. Root at all, and that there was no use in depending upon him any longer. He himself was clay or dust of the earth. At times I may have felt a little proud of my past record. Perhaps I *was* inclined to fall back upon it sometimes. This disposition was all gone. In its place was a feeling that Christ Jesus, and he alone, without help on my part, was to dispel the cloud. Like David, I asked him to create in me a clean heart, and renew a right spirit within me. Since then I have tried to think of the words that I used. It was a simple sentence, but I presume I shall never be able to recall it. *In an instant I felt I was free. A. I. Root* started down the sidewalk, but it was another man that entered the door of the factory. The A. I. Root that had a fancy for specks of cloud that had something curious about them had vanished. The A. I. Root who sits here dictating these words to you is the one who loves Christ Jesus and him alone. His image is first, and above all and over all; therefore deliverance—yes, emancipation, at least for the time being—has come. Therefore I can present to you, dear brother and dear sister, with a stronger faith than I have ever done it before, the text, "Come unto me, all ye that labor and are heavy laden, and I will give you rest."

Just a week has passed since the above was written. No glimpse of temptation has come in the line indicated. When Christian, in Pilgrim's Progress, felt his burden tumble from his back and roll away, he looked at it in astonishment, and wondered how it was possible he had ever cared to lug it about so long. Just so do I look at the sin from which I had been delivered. When the lame man, in answer to Peter's invitation, rose up and walked, he doubtless looked in astonishment at the good stout limbs that were given him in exchange for the poor weak deformed ones. And so it is with me. I do not know how it comes about that such a change has been wrought in me. Like the blind man I can only say, "One thing I know: that, whereas I was blind, now I see." By quoting these words I do not mean to boast of being (even now) better than people in general, for I hope I am cured, at least for a time, of *that* attitude of heart. Neither do I at present just see *what* bearing this has on the tobacco question. It has, however, given me a *wonderful faith* in the matter. God *can* and *does* deliver in an instant from the gnawings and galling bondage of an evil appetite or an evil habit. An earnest study of his sacred word, and a grasping hold of the promises contained therein, can never come amiss; and with the prayer that this little story may help some other one to find relief through Christ Jesus from the burdens imposed by sin, I close.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of queens, bees, and apiarian supplies in general, from the following parties, who will be glad to furnish them to applicants. Those marked with a star (*) also deal in fine poultry.

J. Van Deusen & Sons, Sprout Brook, N. Y.
E. Kretchmer, Red Oak, Ia.
Jerry A. Roe, Union City, Ind.
Leininger Bros., Douglas, O.
J. W. Bittenbender, Knoxville, Ia.
W. J. Row, Greensburg, Pa.
I. R. Good, Yawter Park, Ind.
F. A. Eaton, Bluffton, O.
E. L. Pratt, Marlboro, Mass.
J. D. Goodrich, East Hardwick, Vt.
H. D. Davis & Co., Bradford, Vt.
G. H. Kirkpatrick, Portland, Ind.
C. F. Rood, Romeo, Mich.

THE WISCONSIN STATE BEE-KEEPERS' ASSOCIATION.

TWO DAYS WITH THE WISCONSIN BEE-KEEPERS, HORTICULTURISTS, ETC.

It was a little refreshing, as we came into the city of Madison by moonlight, to see the beautiful lake that borders the city pretty well sprinkled with what I at first took to be sail-boats. Somebody, however, very soon corrected me by telling me that they were *ice* boats. Now, when I undertake to describe ice-boats perhaps I shall "put my foot in it" something as I did when I attempted to tell you about the turkey buzzards of the South. The ice-boats skimmed over the frozen waters of the lake a good deal as you see forest-leaves chase over a frozen pond when driven by the wind. The boat has sails like any boat. It has two *fixed* runners, besides a third one which is not fixed, but which can be turned by the rudder. By turning this rudder and shifting the sails, they run back and forth, and all over the lake. They not only run against the wind (which problem, I presume, is not a very strange one to most of our readers); but with good smooth ice these ice-boats run even *faster* than the wind blows. Of course, in running right square ahead of the wind, the boat can not go quite as fast as the wind goes, on account of friction; but in running at an angle, the boat may, like the sails of a windmill, glide along a good deal faster than the velocity of the wind. The next day I was greatly pleased to see the lake dotted with schoolchildren. Some were skating, and some were running a sort of velocipede made to run on ice. But those that interested me most made *ice-boats* of *themselves*. They held in their hands what seemed to be a very large kite. The lower part of the kite, where the tail is usually attached, rested on the ice, while the body of the kite was held by the skater. Well, by shifting this kite, or sail, the skater could glide with incredible speed, exactly as the ice boat does. Unless he was experienced, however, he was very likely to "glide" and "spin" on his back, and a good many of them seemed to be doing this. I suppose this only added to the fun. Perhaps these arrangements are in use elsewhere; but I confess that the idea of skating with a sail in your hands, so as to make the wind the propelling power, was a novelty to me. Perhaps some of the juveniles will "catch on" and put it in practice, providing we have ice enough before spring comes.

The bee-keepers' meeting was held during the convention week of the State Agricultural Society. Now, I do not know how customary it is for other States to hold joint conventions for a whole week at the capital of the State; but to me it was a most wonderful thing, and likewise a grand thing. Your humble servant had the pleasure of talking, not only with the noted bee-men of the State, but also with the horticulturists, fruit-growers, cattle-men, and with the great minds and experts in every department of rural industry. After our bee-keepers' session was adjourned, somebody spoke of going over to the assembly-room, where addresses were being delivered on dairying. Now, I do not know much about cows, nor about the dairy business either; but I had quite a curiosity to be present at the dairymen's meeting. I wanted to look into the faces of the cattle-men, and I was curious to see whether they managed their conventions any thing in the same line we do ours. Several of the speakers reminded me a good deal of the talks that Terry has given us on horses and cattle. Prof. Henry, of the Experiment Station, stirred me mightily by an account of the investigations they were making in order to determine whether farmers were groping in the dark (as many bee-men have been doing, and are yet), or whether they were doing their level best with mind and muscle to make their occupation profitable. When the governor of the State however (Gov. Hoard), gave us a little talk, not only on keeping cows but on general farming, I felt glad that God had seen fit to give me a place to work in even one department of agricultural industry. It was afterward my privilege to have quite a little chat with Gov. Hoard and a good many other progressive thinkers and workers of the State. Now, even if I should not get much about bees in this issue, I want to give you a little sketch from the talk given us by Gov. Hoard. He said a good many of the dairymen had been working in the dark. They kept thirty or forty cows, fed them intelligently, and made perhaps a very good use of the products of these cattle. But he told us that it was not until quite recently that they had been enabled to keep accurate records of the money value of the product from *each* cow. If the cows are fed about the same, it probably costs about as much to keep one cow as another. He had a lot of figures put on cloth, so it could be unrolled and held up before the audience. The cow at the top of the list produced $86.00 and some odd cents, in one year. The next one was perhaps between $40.00 and $50.00, and so on down to $25.00, $10 00, $5.00, and finally nothing at all; and that chart actually showed that *eleven cows* in the flock gave *minus figures*—that is, their whole product did not pay for the feed they ate, to say nothing of the time of caring for them. They were simply a bill of expense, and the dairyman would have been richer had he made somebody a present of the whole eleven at the commencement of the season. The only trouble is to find out which cows pay and which don't. Now, the farmer who had this drove of cattle, without being told of this, would very likely have kept not only the same flock year after year, but would have gone right on doing *business* in that way. Perhaps bee-men do not do as badly as this; but in bees as well as other farming operations, time and money are wasted in just that way because we do not know *what* we are doing. Very likely many farmers of the old-fogy style would say, "Well, suppose it is so; we can't help it, and there is no other way." My friends, we can help it, and there is a way. We can not all set a chemist at work; but the bright wide-awake man who has a lead-pencil in his

pocket, and uses it as friend Terry recommends, can pretty soon get these *poor* cows and other like stumbling-blocks out of the way.

J. M. Smith, whom I have before mentioned, was president of the association. It was not my good fortune to hear him speak very much; but during the little social chat I had with him in the morning at the hotel, before other people were up, he told me that he wonderful currant-patch (see page 649, 1889) of his actually averaged *twelve* quarts to each bush, or stool of bushes, if you choose. Said I:

"Mr. Smith, those currants were of such extra size and beauty they no doubt netted you more than ordinary figures."

"Yes," said he; "I was a little surprised at the price I received for them. They averaged me ten cents a quart, right through."

Just think of it, friends—$1 20 for each hill of currants! There was certainly a quarter of an acre of them. He told me how many bushes there were, but I have forgotten. I should say they were planted six feet apart each way. At this rate there would be about 1150 bushes per acre; and $1.20 per bush would amount to the enormous sum of $1380. I remember, while looking at them he made a remark something like this:

"Mr. Root, you asked me a while ago if the ground would not, in time, become exhausted, or run out, by being cropped at this tremendous rate year after year. Well, for an answer I want to tell you that the ground where these currant-bushes stand was the acre I commenced with thirty or forty years ago. It has never had any rest. It has been cropped season after season, just as close as the plants can stand. You observe we have onions between our young currants right over there. The men are now pulling the onions, and putting celery where the onions stood. Thus we get currants, onions, and celery, from the same ground during the same season. This one acre that has been used continuously longer than any of the rest of my ground, is perhaps the best land I have. Don't the currants tell the story?"

Please bear in mind, friends, that this statement was not made before any convention or institute. Mr. Smith is an exceedingly modest man, and very likely he would not have mentioned it before the convention at all, nor even to me, had I not asked him point blank in regard to the currants. At the time I looked at them it seemed to me that the sight of that little currant-orchard paid me for my trip to Green Bay, Wis. It paid me in this way: I saw with my own eyes what had actually been done. I have long had notions, as you know, in regard to the possibilities on the acres that lie spread out before us. I saw the bushes bending with currants; I picked them with my own hands, and ate them, and came home with new enthusiasm. What was that care of land worth? Well, I did not think to ask; but I call an acre of my best market-gardening ground worth a thousand dollars. Of course, land, to be worth such a sum, must be reasonably near a market.

Now, we all admit that Mr. Smith is a great gardener. He has perhaps done a little more in that line than any other man in Wisconsin, and possibly more than any other man in the United States. But let me tell you, there were present at that horticultural convention hundreds of men—yes, comparatively *young* men, who had succeeded in a similar way. Every one who spoke was questioned after he had finished, and these questions drew out a good many facts that perhaps the speakers would not have felt like giving otherwise. A good many of them were bashful, and did not feel like making statements that would look like boasting. But very often their *neighbors* let out what they had been doing on single acres or small patches of ground. Their wives and daughters were there too, and a great many times it transpired that the wives or daughters were the real fruit-growers. During the most interesting part of the meeting, Thursday forenoon, somebody at my back startled me by announcing that A. I. Root, of Medina, O., was present, and that he could not only raise bees and honey, but that he had a story to tell about a peculiar way he had of raising strawberries. I confess I shook in my shoes a little at the thought of speaking to a great company like those present, and especially a company so sharp and keen and wide-awake as they seemed to be. Their pleasant looks, however, and encouraging words, soon put me at ease, and I believe I did pretty well for me. A nice young lady near me was busy with pencil and paper, taking down shorthand notes, including the questions and answers, and the good-natured banters and sallies of wit. She, too, gave me several encouraging smiles; and if my talk gets into print, I may, perhaps, give it to you.

Now, friends, I have not told you any thing about the convention of bee-keepers just yet, and I think I will reserve that until another issue. But I want to say a few words more in regard to these gatherings of rural people, and those who love rural industries, at the great centers of our different States. I never until recently comprehended the value of our great Statehouse buildings, to be found in each of our capitals. I confess that I have for years had a little bit of feeling that there was a great amount of money used in the construction of our Statehouses that many a poor man worked very hard to furnish. At Madison the State building seemed to be utilized in a way I had never dreamed of before. The immense pile of buildings was filled with people. They have an elevator like the one in Lansing, that runs by water. There farmers came with their wives and daughters and sons, and all were taking a holiday week in this great edifice. The array of fruit would have graced any State fair. Specimens of other things were in like manner spread out in the different rooms. Beautiful apartments were furnished for institutes, conventions, and general addresses on every topic. Then there were innumerable cosy private rooms, with all convenient

modern appliances fixed up with all the ingenuity that skill could devise, especially for the comfort of farmers and their children. Now, I am not very much given to visiting, but I did most thoroughly enjoy that visit. I did not find anybody who felt hurt or had a grievance to tell. The general spirit seemed to be to help each other. And, oh my! how we did laugh in comparing notes to see how we had been unconsciously blundering in the dark! It seemed as if we all caught hold and climbed higher up just by talking over our experiences and making comparisons. A great many times some unexplained fact in the experience of one brother would dovetail right in so as to let daylight into some dark corner in the experience of another, and then a third one would clinch the nail by something that covered both points. You ought to have seen the countenance brighten, of some hard worker of the Experiment College, as some practical farmer gave him a valuable fact from experience, right where he had been searching for light. As an illustration: At our bee-convention we discussed pasturage and overstocking. Perhaps very many of us supposed that no experiments had ever been made to settle definitely any thing; whereupon friend S. I. Freeborn brought forward a paper, furnishing an array of facts we had all long been wanting, and which have, perhaps, never been in print before. This paper will be found in our next issue.

Now, friends, when you are inclined to stay away from farmers' institutes and suchlike gatherings, and say that it will not pay you, and that you have no money to spare in that direction, remember that your old friend A. I. Root says you are making a *great blunder*. It it a *sin* to stay off by yourselves, and hold aloof from your fellow-men; and it is a sin that will bring its own *punishment* sooner or later. I know, for I have tried by experience, just in the way Mark Twain said he knew it was a bad plan to tell lies—he knew it by experience.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

ALLEY TRAP ON THE HIVES THROUGH THE SEASON.

C. B. C.—The Alley trap can be used on the Simplicity and portico hives, and, in fact, on any of the hives we sell. We have sometimes left the trap on during the entire honey season, but we were not satisfied with the result. You will find further particulars under "Drones," in the A B C book.

BEES 28 FEET FROM THE HIGHWAY.

G. B. H.—We would advise you to put your bees in the back yard, if you have one. A distance of 28 feet is rather too near the public highway; still, if it is inconvenient for you to move them yet, a section or two of nice honey given to the grumbling neighbors will probably adjust matters for a while. Put a high board fence between them and the street, if you have not already done so.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 15, 1890.

He hath delivered my soul in peace from the battle that was against me.—PSALM 55: 18.

MOVABLE FRAMES IN FRANCE.

SINCE the death of Mr. Hamet we find the following in his journal, in a department wherein a national frame is discussed; and it shows most unmistakably that truth is advancing, even in France:

In France, the system of movable frames is far from being as widely diffused as it ought to be.

This is the more remarkable, as it is in direct opposition to Mr. Hamet's ideas.

A NEW BEE-JOURNAL.

WE are pleased to note the advent of Vol. I. No. 1 of the *Apicultural Rundschau*, published in the German language, at Weixelburg, Laibach, Austria. The pages are 9 x 13; it contains 14 pages, very coarse print. The presswork is admirable. The *Observer* also contains a horticultural and farming department. The managers are evidently gentlemen who are fully up to the times.

FREIGHT VERSUS EXPRESS FOR HONEY, BERRIES, ETC.

IN the *Ohio Farmer* for Jan. 25, Samuel Raw tells how they shipped strawberries to Cincinnati during the past season, by freight. The express company charged 35 cents per 100 pounds, and persisted in dumping the berries just as they pleased, because they were in a hurry, as express companies usually are. The strawberry-growers submitted to 35 cents for a while; but when the express companies advanced to 40, then 45, then 50, the berry-growers held an indignation meeting. Result: They clubbed together, sent a man with the berries, by freight. The man who went with them made arrangements with the commission men to meet the trains and take the berries from the cars, with their own men. Of 2000 bushels shipped by freight, at a cost of only 14½ cents per 100, all came to hand in much better order, and almost as quickly. After they had got the above plan in operation, the express companies proposed to do it cheaper; but they were too late in the day. Now, does not the above remind some of us of a similar experience in shipping honey by express? There is a good moral to it, any way.

OUR PROOF-READER GIVES US SOME FIGURES.

THIS number of GLEANINGS is printed on our new Campbell Oscillator press. As an example of what American presses will do, we might mention that the old press which we have just taken out of our press-room, a Cottrell & Babcock, has printed about 229 numbers of GLEANINGS since November, 1878. This represents 1,832,000 copies, at an average of 8000 per month, although for a long time we have printed 10,000. As each copy requires about 5 im-

pressions, it would require 9,160,000 revolutions of the cylinder to do that much presswork. In addition to this we may add all the work on our price list since then, which would be about as much more, and on the A B C book about half as much more, besides miscellaneous work of which we can take no account. And we deem it no small tribute to our workmen to say that the press is still good for many years yet, with the same kind of treatment. It seems like parting with an old faithful friend to have it go. But the demands of business are imperative, and we were compelled to

"Ring out the old, ring in the new."

From Jan. 1, 1879, to Jan. 1, 1890, GLEANINGS contained 9004 pages, or 39½ pages for each number, on an average. The whole pile would weigh 229,000 lbs., and if placed end to end they would reach 290 miles.

CANDIED HONEY; CUTTING DOWN PRICES, ETC.

ON account of my absence in Wisconsin, I did not append my usual foot-note to the initial article in this number. We have, during the past winter, had difficulty in convincing some new customers in a tract a little south of us, that, because the honey became solid in cold weather, it was not necessarily spurious. Complaint came from dealer after dealer. During warm weather they had a satisfactory trade; but when the honey candied on their hands, no explanation would pacify them. There has been such a large amount of discussion in regard to some method for keeping honey from candying that I feel a little backward about taking it up again. Where once a community or town gets to understand it, there is little trouble afterward. But it is a slow, laborious process, many times, teaching the people the facts in the matter. Visiting small bee-keepers, and engaging to take their honey off their hands before they can have a chance to offer it at half its market value, is the plan I have vehemently recommended for years past. I wish to commend most earnestly friend Buchanan's closing thought. Describing your methods of succeeding in business, attending conventions, helping those in the same line of business as yourself, etc., will *never* impoverish a man. The Bible says, "Give, and it shall be given unto you;" and every day, experience convinces us that the successful man is the one who *helps* his neighbors by timely hints, and not the one who wants five dollars for communicating some "valuable secret."

CAN BEES BE MADE TO SWARM AND HIVE THEMSELVES?

THIS old question is taken up by friend Doolittle in this issue. Something like 25 years ago, H. A. King patented the American hive. The particular feature of the patent was a wheel on one side, for automatic swarming. A new hive was to be placed against the old one, having the wheels turned so as to open communication. A book was put out, explaining how to make the bees swarm themselves. A great many of us bought rights, and tried the swarming arrangement. Nobody ever followed it many seasons, however, so far as I know. Perforated zinc was then, of course, unknown. In King's hive the opening was only 1½ or 2 inches in diameter. Doolittle discusses a three-inch hole, or larger, covered with perforated zinc. I feel quite sure it can be made to work. If the opening is made at the proper time, enough bees will go through to care for the brood and to raise a queen. As the old hive becomes populous, more will probably come through. It will, however, without question, interfere more or less with the amount of comb honey stored by the parent colony—perhaps not more, however, than if bees were loafing continuously on the outside of the hive. A comb of brood should be put in, I think, at once, to draw the bees through; but I would not put in the queen-cell, nor give them a queen until three or four days later; and at a certain stage of proceedings I would close the communication between the two hives. Perhaps some one has done this already, or pretty nearly the same thing; if so, we should be glad to hear from him.

THE OHIO STATE BEE-KEEPERS' ASSOCIATION.

THIS association will meet in joint session with the Northeastern Ohio, Northwestern Pennsylvania, and Western New York Bee-keepers' Association in the Council Chamber, City Hall, Cleveland, Wednesday and Thursday, Feb. 19 and 20. The following is the programme:

Wednesday, 9 A.M.—Convention called to order by the president. Reading the minutes of the last meeting. Receiving new members and paying annual dues, 50 cents.
10 A.M.—H. D. Cutting. 10:50, recess. 11:00, appointment of committees. 11:30. Conventions, A. I. Root. 1:30 P.M., Address by President H. R. Boardman. 2:10, Reversing, Chalon Fowls. 2:50, recess. 3:00, Extracting. Which are more expeditious—reversing or non-reversing machines? Dr. A. B. Mason. 3:00, Question-box. 7:00, Marketing Extracted Honey, Moore Bros. 7:55, recess. 8:05. The Production and Marketing of Comb Honey, M. E. Mason.
Thursday, 9 A.M.—Bee Forage, S. F. Newman. 9:40, Out-apiaries, J. B. Hains. Recess. 10:20, Reports of committees and election of officers. 11:10, Cellar wintering, F. A. Eaton, followed by E. R. Root on Outdoor wintering. 1:30. Thick top-bars and honey-boards, E. R. Root. 2:10, Perforated zinc for queen-rearing, Dr. G. L. Tinker. Recess. 3:00, Rearing and shipping queens, Miss Dema Bennett. Unfinished business.

All railroad lines running into Cleveland will sell tickets from any point in Ohio on the Central Traffic Association's plan. Tickets will be good for three days before and after the convention. Be sure that you buy a full-fare ticket to Cleveland, and get a certificate from the agent. The new Johnson House, 133 Superior Street, has reduced rates of $1.25 each single, or $1.00 per day double, for those attending the convention. We urge all bee-keepers to bring along their wives. The representatives of the Home of the Honey-bees will probably be accompanied by their better halves. Dr. Miller has also been invited, and will doubtless be present.

ADDITIONAL NAMES.

SINCE the article in regard to the Brantford meeting was in type we have received the following additional names from Mr. R. McKnight, of Owen Sound, Ontario:

36. Andrew Johnston.
43. William Hill, Sr.
57. William Spedding.
37. A. R. Fierheller.
45. Enos Rosburgh.
96. M. B. Smith.
97. William Knowles.

In speaking of the picture, which we have reproduced elsewhere in these columns, Mr. McKnight says: "I congratulate you on your enterprise in getting so excellent a copy as the one which you have reproduced and numbered."

SPECIAL NOTICES.

PANSY SEEDS FOR OUR READERS.

We have quite a lot of packets of mixed pansy seeds, which are ordinarily sold at 25 cents a paper. We will present one of these to every one who sends a dollar for GLEANINGS after this date, and mentions pansy seeds as premium; or those who have already subscribed may have a packet for 10 cents. This seed is put up by friend F. B. Mills, Thorn Hill, N. Y., whose seed-garden we pictured in our last issue.

LITTLE PINE BOARDS AT A BARGAIN.

We have constantly accumulating, strips of clear pine, plump 3¼ inches wide, ¼ inch thick, and 16 inches long, which we have no use for. If we were obliged to make them they would cost perhaps a cent apiece. As we have no special use for them we will sell them for 25 cents a hundred while they last. In ordering goods by freight you can have some of them put in if you choose.

ALSIKE CLOVER.

We make the following reduction in the price of the above: One ounce, by mail, 5 cts.; one pound, by mail, postpaid, 25 cts. By express or freight, one pound, 15 cts.; one peck, $1.90; ½ bushel, $3 60; bushel, $7.00. The above is for seed carefully cleaned with the best mill made for the purpose, run by power. Not a pound goes out without careful inspection in regard to the seeds of weeds and dangerous plants. The above prices include bag for shipping.

COLD-FRAME CABBAGE-PLANTS.

We have perhaps the handsomest lot of these (friend March's Early Jersey Wakefield *stock seed*) that we ever had at this season of the year. The seed was sown in September, and the plants have been frozen up solid over and over again, so they are thoroughly hardened. Price: 10 cents for 10; 75 cts. per 100; $6 00 per 1000. If wanted by mail, add 5 cts. for 10; 25 cts. for 100, extra, for postage. Seedling cabbage-plants from seeds sown in January, 20 cts. per 100, or $1.50 per 1000. If wanted by mail, add 10 cts. per 100, or 50 cts. per 1000 for postage. Lettuce-plants at the same prices. For transplanted plants, see our seed catalogue.

THE NEW HOT-BED SASH MADE OF GLASS SLATS.

At this date, Feb. 12, lettuce-plants, cabbage and cauliflower plants, have come up and are growing beautifully under these sash, which have not been moved *at all* since the seeds were planted; neither has any covering been placed over the glass, although the thermometer has run down to 15 above zero. Of course, the single steam-pipe about two feet below the surface of the bed has helped materially to keep away the frost; but even if *with* the use of a steam-pipe we can do away with the manipulation of sash in the month of February, I think it quite an invention.

JAPANESE BUCKWHEAT.

A great many offers of seed have been received, in quantities varying from ten bushels to several hundred. The prices wanted for quantities, run from 50 cts. to $1.50. The expense of transportation, of course, accounts for a great part of the wide difference in prices. It seems pretty hard to sell our seed at less than what it cost cash r ght out; but until further notice our prices will be as follows: Trial packet, 4 ounces, by mail, postpaid, 5 cts.; one pound, by mail, postpaid, 15 cts.; one peck, 35 cts.; ½ bush., 60c.; bush., $1.00. These prices include bag to ship it in. Ten or more bushels, purchaser paying for bags, 75 cts. Please note, we can not promise to hold to these prices except from one issue to another. The price is liable to advance by our next issue. Please also notice, that small quantities, say a peck or half a bushel, can't be sent any distance, either by *mail, freight, or express*, without the transportation being more than the value of the buckwheat; and at the above low price it can not very well be sent by *express*, any way you can fix it, without the charges being more than its value; therefore your only plan is to order it by freight along with other goods. If you take several bushels, of course it can be shipped by itself by freight. Remember, *our seed* is carefully cleaned by one of the best power mills.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Black an l unismated queens, 35c each.
H. ..z HART, Avery P. O., Iberia Par., La.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—Since last issue we have received eighty cases of Vermont clover and 20 cases of New York buckwheat honey, and have sold about an equal quantity. There is no change to note in prices, and stock of fine white honey is quite small. We look for a good demand for extracted honey all through this month. We quote comb honey: Clover, 12@14; mixed, 10@12; buckwheat, 9@10; extracted, clover, 7@8; buckwheat, 6@7. C. MCCULLOCH & CO.,
Feb. 10. 339 Broadway, Albany, N. Y.

COLUMBUS.—*Honey.*—Market remains firm at 14@15 for choice stock. Dark and interior grades meet with no sale. Extracted honey. Shippers, this kind of weather, should pack their honey carefully, as two-thirds of the shipments received come in broken-down condition. EARLE CLICKENGER,
Feb. 10. Columbus, Ohio.

SAN FRANCISCO.—*Honey.*—Extracted honey sells from 6@6¾, in a jobbing way, as to quality. Comb honey, from 12@14, as to quality. There is some demand for extracted honey for export.
SCHACHT, LEMCKE & STEINER.
Feb. 4. 16 & 18 Drum St., San Francisco, Cal.

ST. LOUIS.—*Honey.*—Market tame. Demand light. We quote: White clover, comb, 13@13½; dark, 10@12. Extracted, light color, good flavor, 5½@5¾; medium bright, 5¼; dark, 4¾@5.
D. G. TUTT GROCER CO.,
Feb. 10. St. Louis, Mo.

NEW YORK.—*Honey.*—Honey is selling slowly in this market. Fancy goods almost closed out. Only second grades remain.
THURBER, WHYLAND & CO.,
Feb. 10. New York.

DETROIT.—*Honey.*—Comb honey is now quoted at 11@13c; supply not very large, but sales are slow. Extracted, 7@8. *Beeswax*, 24 M. H. HUNT,
Feb. 10. Bell Branch, Mich.

BOSTON.—*Honey.*—Sections, 1-lb., 16; 2-lbs., 15. Extracted, 7@9. *Beeswax*, 23. Trade dull.
Feb. 10. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

FOR SALE.—1500 lbs. of extracted white-clover honey, in 50-lb. cans, at 9c per lb. Honey first-class.
E. P. ALDRIDGE, Franklin Square, Ohio.

Get honey direct from the producer. Send for reduced prices of filled sections, pails, cans, etc.
OLIVER FOSTER, Mt. Vernon, Ia.

FOR SALE.—2000 lbs. of choice white-clover honey, well ripened, in 60-lb. cans, at $4.75 per can, boxed, f. o. b. No. 1 Spanish-needle honey, $4 50 per can of 60 lbs. 3-4d JNO. NEBEL & SON, High Hill, Mo.

Bees! Yes, Lots for 1890, Ready!

We are better prepared this coming summer than ever before, to furnish all kinds of Bee-supplies, Hives, Comb Foundation, Sections, Smokers, Extractors, Queens, Bees by the pound, Nuclei, and Full Swarms. Every thing needed in the bee-business. Send for our new eighth annual Price List, just out. **R. E. SMITH,**
Box 72. Tilbury Centre, Ont., Can.
☞In responding to this advertisement mention GLEANINGS.

EVERBEARING STRAWBERRY. Descriptive price list free.
4-5-6d SETH WINQUIST, Russellville, Oregon.

FOR SALE.

A fine lot of spider, or Grayson Lily Bulbs, which I will sell. Small bulbs 25c, large ones 50c, extra large, 75c. Very beautiful and fragrant, pure white. I also have 40 or 50 stands of mostly Italian bees for sale. Will sell Queens in April. Would exchange bees for registered Jersey heifer. S. G. WOOD,
4-9db BIRMINGHAM, JEFF. CO., ALA.
☞In responding to this advertisement mention GLEANINGS.

Our 1890 Catalogue is BETTER THAN EVER. A complete Garden Guide, full of practical ideas about all kinds of

SEEDS

Vegetables, Flowers, Bulbs, etc., necessary for the garden is mailed FREE to all who apply **if they mention this paper.** With prices lower, quality higher, better facilities for filling orders promptly, generous treatment and over 40 years Seed Farm experience enables us to please you.
A. W. LIVINGSTON'S SONS, Box 278, COLUMBUS, O.

☞In responding to this advertisement mention GLEANINGS.

SOLD IN 1889, AND ready to sell in 1890, all kinds of Bee-keepers' Supplies, Bees, Queens, etc. Send your address and receive our circular. **JNO. NEBEL & SON,**
3tfdb **High Hill, Mo.**

☞In responding to this advertisement mention GLEANINGS.

DON'T FAIL TO TRY THE "MIAMI,"

THE BEST LATE STRAWBERRY ON EARTH!

FINE LITHOGRAPH.
HONEST TESTIMONIALS.

ALSO OTHER VALUABLE VARIETIES, AND A

GENERAL NURSERY STOCK

For sale. Send address for prices, description, etc.

J. D. KRUSCHKE,
BOX 824, PIQUA, O. 3-4d

☞In responding to this advertisement mention GLEANINGS.

SEEDS. Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. F. B. MILLS, Thorn Hill, N. Y.

The Choice Novelties of 1890.

HERE IS A LIST THAT WILL GIVE SATISFACTION:—**Red Cross Tomato**—Resembles Livingston in form, solidity, color, etc., but is decidedly earlier. **Ignotum Tomato**—Round, solid and productive; both Rural New Yorker and Prof. Taft have a special good word for Ignotum. **Gragg Watermelon**—A distinct variety, flesh salmon-color, quality and flavor peculiarly rich and sweet. **Marblehead Early Marrowfat**—A remarkably strong grower, a tremendous cropper, and bears several pickings. **Early Prize Pea**—Cross between Tom Thumb and Advancer; dwarf, early, and a splendid cropper. **The Favorite**—A better Pea than either Abundance or Everbearing. **Ford-Hook Squash**—Dry, fine grained, sweet, hardy, prolific. **White Prolific Marrow**—A new English dwarf, wrinkled Pea, a wonderful cropper. **Giant Pascal Celery**—Stalks extra large, solid, and a better keeper than other self-blanching varieties. **Cylinder Wax Bean**—The rust and blight-proof Wax Bean so long sought for. **Coral Gem Pepper**—With its hundreds of brilliant red pods, it is as brilliant as a gem. **Blonde Block-Head Lettuce**—A rich, golden-headed Cabbage, crisp and fine.

15 cts. per package; **Ten** for **$1.00.** An extra package to all naming this paper. Seed Catalogue **free. JAMES J. H. GREGORY, Marblehead, Mass.**

☞In responding to this advertisement mention GLEANINGS.

GET ACQUAINTED WITH THE BEE-KEEPERS' REVIEW.

The December issue has 24 pages, a cut showing "The Home of the REVIEW," also an accompanying article descriptive of "The REVIEW, its Home, its Editor and his Family." This number shows more clearly, perhaps, the plan upon which the REVIEW is conducted, than does any single number that has preceded it. In its advertising columns will be found the description of a plan whereby all who wish may secure the back numbers at a trifling cost. The special topic of this issue is, "What Will Best Combine With Bee-Keeping? and What Shall Bee-Keepers do Winters?" This number will be gladly sent free to all who apply, and with it will be sent two other numbers. 2tfdb

W. Z. HUTCHINSON, Flint, Mich.

FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

☞In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS

Coming to Washington, D. C., will find pleasant rooms and board (by day or week) at special rates. Satisfaction guaranteed. Central location.
1301 K. St., N. W. 3tfdb F. DANZENBAKER.

☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES,** write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—*Bottom For Cash.* See Exchange Column. H. L. GRAHAM,
3 4d LETTS, LOUISA CO., IOWA.

BEES **SEND** for a free sample copy of the **BEE JOURNAL**—16-page Weekly at $1 a year—the oldest, largest and cheapest Weekly bee-paper. Address
16tfdb **BEE JOURNAL, Chicago, Ill.**

SEND $1.25 TO THOMAS GEDYE, Kangley, Ill., for a sample of his *All-Metal Separator,* or $11 50 per 1000, and be convinced that they are the cheapest and best out. At present I have them for combined crates and T supers only. Supply-dealers, please send for prices on large quantities, cut or uncut. 1tfdb

☞In responding to this advertisement mention GLEANINGS.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (*Mention Gleanings.*) 1tfdb

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The Bee-Keepers' REVIEW

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free. Send for them, and learn how to get the back numbers cheaply.

W. Z. HUTCHINSON, Flint, Mich.

☞In responding to this advertisement mention GLEANINGS.

The SWARM-HIVER

Sent by mail, and the **American Apiculturist** one year, $1.50. *Circulars and sample copies free.*

Address AMERICAN APICULTURIST,
5tfdb Wenham, Mass.

☞In responding to this advertisement mention GLEANINGS.

CARNIOLANS.

We make Carniolan bees and queens a specialty. See our prices before placing your orders. Our stock of Carniolans can not be excelled by any. Descriptive circular and price list for 1890 now ready. Write for it. Address F. A. LOCKHART & CO.,
5tfd (Formerly of Andrews & Lockhart.)
Pattens Mills, Wash. Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

UNTESTED ITALIAN QUEENS AT $1, and 4-frame nuclei at $3.50, after May 1st. Send in orders now.
4-10db S. J. WAKEFIELD, Autreville, S. C.

CARNIOLAN QUEENS,

BRED FROM AMBROZIC AND BENTON Imported 1889 Queens.

Circular of Supplies and Queens. | **J. B. Kline's Apiary, Topeka, Kas.**

☞In responding to this advertisement mention GLEANINGS.

FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks. Address **N. A. KNAPP,**
4tfdb **Rochester, Lorain Co., Ohio.**

Bees Poultry
Bees Poultry
Bees Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at $1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

FOR THE SEASON OF 1890.

Headquarters in the South.

TWELFTH ANNUAL CATALOGUE NOW READY.

A steam-factory exclusively for the manufacture of Bee-keepers' Supplies.

ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

with pure Italian queen, containing 3 pounds of bees when secured, in April and May, $4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Twelfth Annual Catalogue.

P. L. VIALLON,
Bayou Coula, Iberville Parish, La.

☞In responding to this advertisement mention GLEANINGS.

For Sale.—For cash, cheap, or trade for a good piece of land, from 50 to 200 colonies of Italian bees in the Quinby hive, and a few in Root's Simplicity. Too much work, with other business.
2tfdb G. HARSEIM, Secor, Woodford Co., Ills.

FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

FOR SALE!

One of the best located apiaries in Iowa, **150 Colonies,** in Langstroth hives. Handsome two-story frame residence. Twenty acres land. All necessary out-buildings. Also fine flock White Wyandottes. Two cows, nice span driving horses. Never a failure of honey. White clover, basswood, golden-rod, buckwheat, etc. House nearly new, nicely decorated paper, a very pleasant home. Price **$2500.** **C. A. SAYRE,**
23tfd **Sargent, Floyd Co., Iowa.**

☞In responding to this advertisement mention GLEANINGS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
3tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.

☞In responding to this advertisement mention GLEANINGS.

Eaton's Improved SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
Bluffton, Ohio.

☞In responding to this advertisement mention GLEANINGS.

Maple Sugar and The Sugar-Bush

THIS IS A NEW BOOK BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ILLUSTRATED,

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail, 38 Cts.

A. I. ROOT, - - Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange for land or stock merchandise, a first-class apiary, 175 colonies. No better location. Crop, past season, 18,000 lbs. Bees need not be moved. Every thing complete, ready for business. Found.-machines, 4-horse-power, etc. Good trade direct with consumers. Give particulars for particulars. H. L. GRAHAM,
3-45a Letts, Louisa Co., Ia.

WANTED.—To exchange 1000 new bee-hives, all complete, for bees, or will furnish hives, sections, and foundation, for share of the honey, to parties living in Maryland, Virginia, or West Virginia. Write for particulars to
F. DANZENBAKER,
1301 K. St., N. W., Washington, D. C.

WANTED.—To exchange Gregg, Souhegan, Early Ohio, and Tyler raspberry-plants, Warfield, Bubach, Jessie, May King, and Hoffman strawberry-plants, A No. 1 plants, and true to name, for sections, honey, beeswax, or pear-trees. Satisfaction guaranteed. E. T. FLANAGAN, Belleville, Ills.
3-5-7-d

WANTED.—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with 5½x9½-in. chase.
3-11d S. A. SHUCK, Liverpool, Ills.

WANTED.—Bee-help for 1890. One man with experience, and two desiring to learn the practical part of apiculture. Must be strictly temperate. State wages expected, and other particulars. 3 6db S. I. FREEBORN, Ithaca, Wis.

WANTED.—To exchange all kinds of wall paper, for honey. J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation.
1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange foundation, for beeswax. Sample on application.
Avery's Island Apiary, Avery, La.

WANTED!!! I want a man to take charge of an apiary. F. D. LACY,
2-5db Nirvana, Lake Co., Mich.

WANTED.—To exchange from one to 1000 books, of new publication, for bees and apiarian fixtures. F. D. LACY, Nirvana, Lake Co., Mich. 4tfdb

WANTED.—I want a small-size baling-press, for which I will exchange folding paper boxes, Italian bees, hives, extractors, or job printing.
4 5d A. O. CRAWFORD, S. Weymouth, Mass.

WANTED.—To exchange nursery stock for shotgun or lawn-mower. GEO. GOULD,
4-56d Villa Ridge, Pulaski Co., Ill.

WANTED.—To exchange Ply. Rock, Langshan, and Wyandotte cockerels *for* Wyandotte hens, *thoroughbred*. Correspondence solicited.
45d W. H. SWIGART, Dixon, Ill.

WANTED.—To exchange bees and queens for nursery stock, or will pay cash. C. E. PRICE,
5d Smithtown Branch, Suffolk Co., N. Y.

WANTED.—To exchange a 6-inch Pelham fdn. mill, in good order, one dipping-tank, one 10-inch planer saw, one 10-inch rip-saw, one 10-inch cut-off saw; 8-inch bevel saw; one 6-inch rip-saw; one saw-mandrel, for tin sap-buckets, new or second hand, Post's Eureka spouts, or offers. F. W. DEAN,
5d. New Milford, Pa.

WANTED.—To exchange one Acme harrow, new, for Poland-China swine, either sex, or Shropshire ewes, or any thing I can use on the farm or in the apiary. LUTHER PURDY, Killbuck, O. 5tfdb.

WANTED.—To exchange for supplies, or part payment for Barnes saw, one Twombly knitting-machine, with coarse plate; nearly new.
5d J. M. MOORE, Holden, Mo.

WANTED.—To exchange 2 breeding-pens, one cockerel and 6 hens each, White P. Rocks, or White Wyandottes, A No. 1 stock; 2 pairs of premium birds, for full colonies of bees, to be shipped in April or the first of May. J. B. MASON,
5d Mechanic Falls, Me.

WANTED.—To exchange one 5 x 8 photograph outfit for a foot-power saw, bicycle, apiarian supplies, or any thing useful on a farm.
5d P. M. LOCKWOOD, Sand Lake, Kent Co., Mich.

WANTED.—To exchange a quarter-plate camera, with stand, head-rest, cartons, and chemicals, for small self-inking printing-press and type, or offers. F. T. HALL, Lochiel, Dunn Co., Wis.

WANTED.—To exchange thin fdn. or queen-restrictors for honey. C. W. DAYTON,
5d Bradford, Chick. Co., Iowa.

WANTED.—To exchange Cuthbert raspberry-roots for beeswax, L. fdn., and Shaffer's Colossal raspberry-roots. M. ISBELL,
5-7d Norwich, Chenango Co., N. Y.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange Turner and Cuthbert raspberry-plants for pure Italian queens, eggs for hatching, etc. E. R. MILLER,
5-6-7d Garden City, Cass Co., Mo.

WANTED.—To exchange 11 bound volumes of GLEANINGS, from 1878 to 1889, inclusive, for a Webster's Unabridged Dictionary, or a copying-press or offers. W. S. WRIGHT,
5d Battle Creek, Mich.

WANTED.—To exchange comb honey and Japanese buckwheat for extracted honey and comb foundation. F. WILCOX,
5 6d Mauston, Juneau Co., Wis.

FOR SALE—6 colonies hybrid bees in Root Dovetailed hives at $4.00 per colony. Address
5-6d T. L. THOMPSON, Blairsville, Indiana Co., Pa.

2 **SIMPLICITY BEE-HIVES,** 2 covers, 1 T super and 56 sections, in flat, $1.25. All kinds of hives and extractors made to order.
5-7d T. A. GUNN, Tullahoma, Tenn.

SUPPLIES!

Send for circular—free. **WALTER S. POUDER,**
175 E. Walnut St., Indianapolis, Ind.
5tfdb (Successor to F. L. Dougherty.)

READY to Mail, tested Italian queens cheap, from imported mothers. Untested in season. Send for circular. SIMON P. RODDY, Mechanicstown, Md.
5-7-9d

J. E. Neyland, McLane, Erie Co., Pa.

BREEDER OF CHOICE
RED CAPS AND ANDIGOLOES EGGS; $3 PER 15.
Also Golden Wyandottes, White Plymouth Rock, Golden Spangled Hamburg. Black Hamburg eggs, $2.00 per 15. I have taken first prize wherever shown.
☞In responding to this advertisement mention GLEANINGS.

HOME **EMPLOYMENT.—AGENTS** wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. **THOS. G. NEWMAN & SON,**
246 East Madison Street, - - CHICAGO, ILLS.
☞In responding to this advertisement mention GLEANINGS.

A New Discovery.

THE COMMON-SENSE HONEY-EXTRACTOR is strictly scientific, powerful, durable, handy, clean and rapid, and differs from all others, and is cheaper than the cheapest at slaughter prices. CIRCULARS FREE.
5d **REV. A. R. SEAMAN,**
New Cumberland, Hancock Co., W. Va.
☞In responding to this advertisement mention GLEANINGS.

ALBINO AND ITALIAN

QUEENS AND BEES FOR 1890.

If you ask for the best, The reply, 'Albino, I!" If you ask why, I can only refer you to the many that cry, "Albino for I!" In my circular you can see why. Address **S. VALINTINE,**
5d **Hagerstown, Wash. Co., Md.**
☞In responding to this advertisement mention GLEANINGS.

SEEDS. Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. F. B. MILLS, Thorn Hill, N. Y.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

20 black queens for sale now at 50 cents each.
W. T. LYONS, Decherd, Franklin Co., Tenn.

Black queens, 3 for one dollar; also a few hybrids.
5tfdb H. FITZ HART, Avery P. O., Iberia Par., La.

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1.17	65, 65, 64, 63, 63, 63, 62, 54 40, 33
1 green	10	100	83	1.46	
25 green	12	100	100	1 75	44, green; price 77 cts.
1 green	14	12	14	25	
2 green	16	100	133	2 33	
1 black	17	100	142	2.47	
1 black	18	100	150	2.62	
5 green	18	100	150	2 62	
1 black	20	100	167	2 92	150 sq. ft., green; price $2.62
1 black	22	71	128	2.24	110 sq. ft., black; price $1 92
9 green	24	100	200	3.50	140, 100, 90, 40, 30, 20, 8, green.
1 black	24	100	200	3.50	
64 green	26	100	217	3 50	This is below reg. pr. of 1¾ c.
18 green	28	100	233	4.08	224, 224, 117, green; 233, black.
6 green	30	100	250	4.37	
3 black	30	100	250	4 37	
14 green	32	100	267	4 67	133, 133, green; price $2.33
1 black	32	100	267	4.67	253, black; price $4.43
1 green	34	100	283	4 91	255 black; price $4 46
14 green	36	100	300	5.25	270, green; price $4.72
1 black	36	100	300	5.25	150, black; price $2.62
8 black	38	100	317	5 54	269, black; price $4.70
3 green	38	100	317	5 54	258, black; price $4 50
3 black	40	100	333	5 83	317, black; price $5.54
1 green	40	100	333	5 83	
8 black	42	100	350	6 12	350, green; price $6.12
1 green	44	100	367	6.42	

A. I. ROOT, Medina, Ohio.

GUARANTEED FOUNDATION

For Sale Cheap. Write for prices.
E. R. MILLER,
5-7-9d **Garden City, Cass Co, Mo.**

REVIEW OUR 1890

16-page circular of bee-keepers' supplies, etc. Also note prices of our choice strain of Italian bees. Circular free. Address **JNO. NEBEL & SON,**
5tfdb **High Hill, Mo.**

FOR SALE -- PLANER.

One second-hand Hoyt Bros. single surfacer, 26 in. Complete with countershaft, 2 sets of knives, $75.00.
d B. H. WOOD & CO., MEDINA, OHIO.

H. G. FRAME, NORTH MANCHESTER, INDIANA,
Breeder of Italian and Carniolan Queens. Bees by the pound and nucleus. Price list free.
5tfdb Reference First National Bank.

FIRST-CLASS BROOD-FRAMES cut to order, *any size.* Per 100, $1.50; 500, $7 00; 1000, $13.50. C. W. VANHOUTEN, Smithfield, Ful. Co., Ill.

BEES
BEES
BEES

Carniolan queens and bees a specialty. Seven years' experience with those bees satisfies me of their superiority. They are unexcelled in gentleness, hardiness, and prolificness, as comb-builders and honey-gatherers. Write for circular and price list. Address *A. L. LINDLEY,*
Mention Gleanings. *Jordan, Indiana.*

Our **1890** Catalogue is BETTER THAN EVER. A **complete GardenGuide,** full of practical ideas about all kinds of

SEEDS

Vegetables, Flowers, Bulbs, etc., necessary for the garden is mailed **FREE** to all who apply **if they mention this paper.** With **prices lower,** quality higher, better facilities for filling orders promptly, generous treatment and over **40 years** Seed Farm experience enables us to please you.
A. W. LIVINGSTON'S SONS, Box 273, COLUMBUS, O.
☞In responding to this advertisement mention GLEANINGS.

LOOK HERE!

Bee-Keepers and Fruit-Growers, before you order your supplies for 1890, send for my catalogue and price list of **Bee-Keepers' Supplies** and **Strawberry Plants.** Twenty-five approved varieties grown for this season's trade. Prices reasonable. **Bees** and **Queens** for sale; $1.00 queens a specialty. Address **F. W. LAMM,**
24-23db (Box 106.) **Somerville, Butler Co., Ohio.**
☞In responding to this advertisement mention GLEANINGS.

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS.*

Southern Bee-Keepers, Send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.
☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—Stock continues to move off gradually; and from present indications we shall not be obliged to carry any over during the summer. In fact, there is a growing demand for honey the year round. We quote clover, 12@14; mixed, 10@12; buckwheat, 8@10; extracted, light, 7@8; dark, 6@7. C. MCCULLOCH & CO.,
Feb. 21. 339 Broadway, Albany, N. Y.

CHICAGO.—*Honey.*—Trade in honey is not active, yet is selling fairly well in a one to five case way. Few dealers are buying over 50 lbs. at any one time. Prices range from 12@13c for best white in pound sections, and off color or other conditions at 10@11. Dark, 8@10. Extracted, 6@8, according to quality. *Beeswax*, fair yellow, 25.
R. A. BURNETT,
Feb. 11. 161 So. Water St., Chicago, Ill.

COLUMBUS.—*Honey.*—Market is about the same as at last report. Strictly first-class white clover brings 14@15c. Dark and inferior grades meet with no sale. Extracted honey, dull. Trade in general is dull. EARLE CLICKENGER,
Feb. 20. Columbus, Ohio.

CINCINNATI.—*Honey.*—There is a lively demand of late for extracted honey in glass jars, while demand from manufacturers is slow. Extracted honey brings 5@8c on arrival. Comb honey, 12@15 for best white, in the jobbing way. *Beeswax*, demand is good at 20@24 for good to choice yellow.
CHAS. F. MUTH & SON,
Feb. 14. Cincinnati, O.

ST. LOUIS.—*Honey.*—Choice white-clover honey in 1-lb. sections, small single-tier boxes, 12½@13. Broken, dark comb honey, 9@11; extracted, white clover, 6½@7, in cans. Southern and western extracted, in barrels and cans, 5½@6½, choice, and 4½@5 for dark. *Beeswax*, as runs 22; selected, 25.
Feb. 11. W. B. WESTCOTT & CO.,
St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Extracted honey, 6@6½; firmer, and more demand. Comb honey, 1-lb. sections, more demand—11@14; 2-lb. sections are neglected; 8@12. *Beeswax*, 18@23.
SCHACHT, LEMCKE & STEINER.
Feb. 14. 16 & 18 Drum St., San Francisco, Cal.

NEW YORK.—*Honey.*—Honey market is quiet and unchanged. *Beeswax*, scarce; demand very good. We pay 25 for good average quality, delivered in New York. F. G. STROHMEYER & CO.,
Feb. 21. New York.

ST. LOUIS.—*Honey.*—Market very quiet. Prices unchanged. *Beeswax* scarce, and wanted at 23.
D. G. TUTT GROCER CO.,
Feb. 22. St. Louis, Mo.

BOSTON.—*Honey.*—We quote: Best 1-lb. comb honey, white, 15@16; best 2-lbs., 14@15; extracted, 8@9. Sales slow. BLAKE & RIPLEY,
Feb. 24. 57 Chatham St., Boston, Mass.

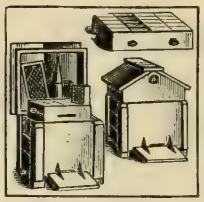
DETROIT.—*Honey.*—Comb honey continues to be quoted at 11@13; supply moderate. Extracted, 7@8. *Beeswax* firm at 24@25. M. H. HUNT,
Feb. 22. Bell Branch, Mich.

FOR SALE—500 lbs. of nice comb honey in 1-lb. sections, 24-lb. cases, delivered free on board cars at Dixon, in good order, for 11½ cts. per lb. Also 500 lbs. nice extracted honey in 60-lb. square cans, at 8 cts. EZRA BAER, Dixon, Ill.

THE BEST THING OUT FOR GETTING BEES OUT OF SUPERS.

The Dibbern Bee-Escape.

Get a pattern, and be sure you have it *just right*. Now perfect. Tinned wire cloth, soldered on tin. Instantly removable. Sample cone by mail, 50c. Complete board, express, $1.00.
5-7-9d **C. H. DIBBERN, Milan, Ill.**
☞In responding to this advertisement mention GLEANINGS.



HILTON'S
Improved Chaff Hive
AND T SUPER.

The pamphlet: "How I Produce Comb Honey." Price 5 cts. Send for free illustrated price list of everything needed in the apiary.
GEO. E. HILTON,
5-10db **Fremont, Mich.**
☞In responding to this advertisement mention GLEANINGS.

BASSWOOD TREES.

Basswood-trees 1 to 3 feet high.....$ 1 50 per 100.
" " 1 " 3 " " ..... 10 00 " 1000.
" " 3 " 5 " " ..... 2 50 " 100.
" " 3 " 5 " " ..... 20 00 " 1000.
5-6d Address **HENRY WIRTH,**
Borodino, Onon. Co., N. Y.
☞In responding to this advertisement mention GLEANINGS.

QUEENS! EARLY! QUEENS!

Italian queens promptly shipped after March 15.
Tested queen.....$2 00 | Untested $1 00
Three Untested Queens..... ...$2 75
Two-frame Nucleus with Untested Queens after April 1st, $2 50. We use the Simp. frame, and guarantee safe arrival, etc. Circulars free. Make money orders payable at Clifton. Address 5tfdb
COLWICK & COLWICK, Norse, Bosque Co., Texas.
☞In responding to this advertisement mention GLEANINGS.

LOOK HERE! 18 **COLONIES** of Italian and Hybrid bees in good condition, for only $54.00. If you want a bargain write immediately to **FRANK HOWARD,**
5d **Fairfield, Wayne Co., Ill.**

TESTED
CARNIOLAN QUEENS.

We have just purchased all the tested Carniolan queens that John Andrews, of the late firm of Andrews & Lockhart, has now wintering in their 100 colonies. These queens are to produce no bees showing any yellow bands, and are to be shipped in May. Any one in need of a nice breeding queen early in the season should correspond with us; and any interested in these bees should read description in our illustrated catalogue, sent free on application. Address
THE BEE-KEEPERS' ADVANCE,
5-7d **Mechanic Falls, Maine.**
☞In responding to this advertisement mention GLEANINGS.

SEED POTATOES.

I offer the following choice varieties at the low price of $2.00 per bbl. of 165 lbs.: Early Ohio; Chas. Downing; Sunlit Star; Crown Jewel; Thorburn; Early Rose. All choice stock, my own raising. Compare this price with your seed catalogue. Send cash with order. This will appear only once.
T. H. KLOER, 426 Willow Street, Terre Haute, Ind.
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS

Is my specialty. For five years I have been perfecting a strain of bees as honey-gatherers, unexcelled. I think I have something better to offer than the general queen-market affords. I have one stock that, without increase, gave me $24 cash from honey alone, in one season. If you are in need of queens, or wish to improve your stock, please let me supply you. I guarantee satisfaction. You may order now if you please, and pay when queens arrive. In May, Untested, each, $1.00; six, $4 50.
W. H. LAWS, LAVACA, SEBASTIAN CO., ARK.
☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS AND BEES,

Bred the coming season from Imported mothers, will be ready to send out the first of June. Send for free circular, to **JOHN ANDREWS,**
Pattens Mills, Wash. Co., N. Y.
☞In responding to this advertisement mention GLEANINGS.

Vol. XVIII. **MAR. 1, 1890.** **No. 5.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

RAMBLER VISITS SHOREHAM.

PUTTING IN FOUNDATION.

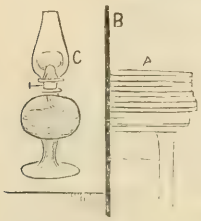
A FEW days previously to arousing the Rambler's enthusiasm about raising honey on forks and spoons, Bro. Larrabee drove us around among the bee-keepers of Shoreham and adjoining towns. Shoreham is noted for its blooded horses and sheep; and where so much pride is taken in improving stock, the farm and the buildings are, as a necessary consequence, also improved. Many beautiful residences and commodious barns are found. So we find the Shoreham bee-keepers a progressive lot of men and women; for Shoreham has lady bee-keepers, as will be seen by further articles.

V. V. BLACKMER'S APIARY AND HONEY-HOUSE.

V. V. Blackmer lives in the adjoining town of Orwell. He owns a large and fertile farm; has sons and daughters; an apiary of 130 colonies, and the largest and finest honey-house the Rambler ever saw. The honey-house (shown on the right) is 36x32 feet, and two stories in height. It is used for storing the tons of honey; grading, crating, etc.; also for putting together hives. Mr. B. purchases all material in the flat, and preparation for the season is made during the winter. Of course, he uses the Bristol hive and clamps, and raises comb honey exclusively. The hives are neatly arranged in a pear-orchard; and during the past season his success has been much better than his Shoreham neighbors', showing that localities vary, even when only a few miles apart. He markets his own honey by taking samples and going among the retail merchants and grocerymen in the eastern cities; and he claims that he saves the profit he would have to give a commission house. We could plainly see that he could readily sell honey, for he is a portly, sedate, ministerial-looking man. We suppose it arises from his being deacon in the Congregational church. When he tells a man his honey is thus and so, the merchant believes it; and his belief is confirmed when the honey arrives, for only good honey is shipped.

We noted a peculiarity about Mr. Blackmer which we have noted about other bee-men, and with men in other pursuits. He had adopted, and for several years used, the Bristol hive and clamp. Having good success with it there was no evident desire to change or even try any other hive or system of management. In fact, as he told me, he did not want any thing better, and doesn't believe there is any thing better, and will keep right along raising comb honey in just that way as long as he lives.

Among the appliances in the honey-house was one quite novel, for putting foundation into sections. The foundation was cut a suitable size, and put in by heating the edges. It was put upon the little stand A, with an edge against the sheet metal B. A lamp, adjusted so as to keep the edges at just the right temperature, was placed in front. You see, the temperature can be nicely controlled. Mr. B. thinks this the very best way to put in foundation, and will stick to it, probably, as tight as the whole State of Vermont does to the Republican party. After a pleasant visit and dinner, genial John and the Rambler went on their way, both profited by their visit. RAMBLER.



PASTURAGE AND OVERSTOCKING.

READ AT THE WISCONSIN STATE BEE-KEEPERS' ASSOCIATION, FEBRUARY 5, 1890.

I HAVE been booked to say something on this subject. That it is a subject of very great importance, all will admit—not so much to the keeper of a few colonies who may keep them for recreation or experiment, or to the farmer who may keep a few as he does hens, as one of many items to swell the gross receipts. To such it is not of vital importance that they fully understand, or stock to its full capacity the location they occupy, as they make but a small effort, and are at but little expense. They can stoically take what they get; and, not being dependent on their bees for a living, they can accept the results with composure.

To the specialist it is different. If he embarks in apiarian pursuits exclusively, it stands him in hand to be well posted in all that relates to his field of operations. He can not afford to make mistakes, nor can he afford to share with others the field he occupies. He should have, if possible, an undivided field, with no bee-keeping neighbor nearer than five miles. If he expects to have out-apiaries he should have room to spread his yards from four to six miles apart. If already living in and owning such a place he is so far fortunate; if not, and bee-keeping is to be his specialty, it will pay him to move even hundreds of miles, if necessary, to find a place adapted to his wants. It will not pay to throw away good talents on a poor location. But some will say, "This involves too much. If I have to move to go into the bee-business, I will give it up."

This is the point exactly. Few will take the trouble. The result is, there are but few specialists who make a big thing of the business. The larger part of the would-be bee-keepers, rather than take the necessary trouble to provide themselves with an unoccupied field, prefer to start in a field already partially or wholly stocked, with some kind of a vague notion in their minds that the bee-business is an affair of luck any way. They do not seem to grasp the fact that bee-forage is limited in all places, and that, if the limit is passed, the profits will cease to all concerned.

HOW MANY COLONIES IN ONE PLACE.

Here is where doctors disagree. Mr. Heddon, a great light in apiculture, has declared that he has never found a man capable of shedding one ray of light on the subject. This is a sweeping assertion, and not very flattering to those who have written on the subject. I can not quite agree with Mr. Heddon, for I think I have received a few rays and a few pointers that are useful to me at least.

To illustrate, I will give a little of my experience. For ten years I have had an out-apiary five miles south, called the Sextonville apiary. I have kept from 125 to 200 colonies there, spring count, and for most of the time I have had an undivided field. It has been a good location for early pollen, clover, and basswood. As high as 200 colonies would seem to get plenty of early pollen, and do fairly well on basswood and clover; but for fall flowers 200 was far too many. A less number in as good location made a far better average.

For a few years past, other bee-yards have been started in the vicinity of this yard, making the number on the range about 300. The falling-off in the amount per colony has been very apparent. Last year our receipts of basswood from the 200 colonies was 13,000 lbs. with 300 colonies in the field—an average of 66 pounds to the colony. We moved from the home yard, 100 colonies to basswood timber. They gathered, in 17 days, 11,000 lbs., an average of 110 lbs. each, or 45 lbs. per colony in favor of a location not overstocked. This is satisfactory evidence to me that the Sextonville location was overstocked, and that the last 100 colonies added to the range lessened the average yield from 100 lbs. per colony to 65 lbs. This also shows the importance of understanding the resources of our location; for if a man can run 100 colonies with an average annual yield of 100 pounds per colony, and on adding 50 colonies more he finds his annual yield per colony 70 pounds, he will get only 500 pounds of honey for the capital invested, and care of the 50 colonies, which would be very poor pay for the outlay.

WHAT OUR BEE-MEN ARE DOING.

It seems to be the aim of several of our most successful bee-keepers to keep from 75 to 125 colonies in a place. That locations vary greatly, all are aware. Some locations are as capable of sustaining 200 colonies as others would be 50. We will describe what we consider to be a good location for this country.

1. Near a creek or river bottom, where plenty of alder, willow, and soft maple grow to afford early pollen, and near a good deal of pasture land containing much white clover, and near a large body of basswood timber; and if asters and other fall flowers grow thick in the bottoms, and wild raspberry on the hills, so much the better. If you have this kind of place, or can get it, stick to it as long as you can, for it will be a good place for bees. There are some such places in Wisconsin and Minnesota, but they are becoming rare. Where is the honey of the future coming from? White clover seems to promise the best of any one thing. It has many points in its favor. 1. The honey is of fine quality, and esteemed by a larger class than any other kind of honey. 2. It grows over a larger area of the United States than any other yielding plant, shrub, or tree. 3. Its area is still on the increase, and likely to be for years to come. Basswood is a grand tree, and yields a fine honey, not equaled, to my taste, by any thing in the way of honey, from honey-dew to white sage. The sight of a large basswood forest in bloom, with the bees working on it, is reviving to the eyes of a bee-keeper; but, alas!

the glory of our basswood forests is fast disappearing; and unless immediate steps are taken to preserve some that we have, and plant more, basswood honey will soon be at a premium.

The white sage of California has been long and favorably known as a honey-plant of rare virtue, giving some of the lightest-colored honey in the world; but, like our basswood, its area is getting to be limited. It is fast disappearing before the cattle, sheep, and plow. Alfalfa is coming to the front as a honey-plant. Some enormous yields are reported from it. As it grows where people are obliged to irrigate, the bees are sure of good weather in which to gather the harvest.

In the foregoing I have mentioned only some of the most prominent honey-producing plants and trees. Time and space forbid a more extended list.

Ithaca, Wis. S. I. FREEBORN.

CAN WE DISPENSE WITH HONEY-BOARDS?

V TOP-BARS; MELILOT, ETC.

I WAS very anxious to get light as to deep top-bars vs. brace-combs, and am getting it from many. For the same I am thankful. I think I have light enough to feel my way carefully, and I am not without hope that I may be one of the fortunate who can prevent brace-combs between top-bars. I am a little surprised at Bro. Heddon expressing such positive knowledge (I refer more particularly to his statements at the Chicago convention) that the slat honey-board can not be dispensed with. Either one of two things may render it advisable to lay aside the honey-board. The first is, that it should lose its efficiency. For a time it was entirely successful with me; but if it should continue to deteriorate as it has done, it will be worse than useless. It is at least possible that in time it may fail with others. Bro. Heddon's last article reveals the fact that he uses top-bars ⅞ inch deep. May that not account for his succeeding better than I, whose top-bars are only ⅝ deep? And if the top-bars make a difference, may they not possibly make so much difference that no honey-board shall be needed?

That is, in the second place, it may be advisable to lay aside the honey-board, if top-bars can be so made and used as to prevent brace-combs above them. A single case in which this has been done—and there have been several—overbalances a hundred assertions that it can not be done. Even if top-bars can be made to do nearly as well as honey-boards, top-bars alone are best, because of the time and the daubiness every time a brood-chamber is opened, and because the brace-combs between the top-bars and the honey-board probably involve a loss of dollars in honey.

Now as to the practical question, Shall I throw honey-boards aside? Not yet, nor hastily. It would be no light matter to change all my top-bars; and although others may succeed, before I make any great change I must see whether *I* can be successful with a few hives. I recommend others to go slow.

V TOP-BARS.

There was a time when V-shaped top-bars had the advantage, that bees built straighter combs on them; but now that foundation is used in brood-frames, is there any advantage in having the lower edge of the top-bar beveled? It is said, that a top-bar ⅞ deep, beveled so that it is ⅜ thick at the edges, will not sag as a flat ⅝ piece will. I have had no serious trouble with flat ⅞ top-bars sagging; still, the V projection would be stiffer. But this V makes more wood; and would it not be better to have this additional wood in flat shape? A flat top-bar, ⅝ thick, would contain just as much wood as the beveled ⅞ bar spoken of above; and while it might not be quite as stiff it is not likely that any one would complain of a ⅝ bar sagging. The V bar has, for a half-inch of its depth, cells ranging from nothing to full depth; while the flat bar allows brood to be raised in all its cells, giving more room for comb, for it must be remembered that the upper part of the bevel can not be utilized; for bees will not make such very shallow cells.

WILL MELILOT MAKE HAY?

Friend Root, are you not a little hasty in your judgment of melilot, on page 56? You say, "I do not believe that sweet clover is worth very much for pasture or for hay, in the Northern States. The matter was pretty thoroughly discussed through our columns some years ago. While cattle eat it at a certain stage of growth, to some extent, this stage goes by so soon that it has been generally voted not worth the trouble, as feed for stock." I know the matter was *discussed*, but has it ever had a fair *trial?* Has any one ever made a ton of melilot hay, and reported? or a hundred pounds? Has any one reported a case where melilot grew in a pasture to which cattle had constant access without touching it? I think it is very uncommon to find sweet clover growing in pastures. I do not know of any such case, although I know of plenty growing elsewhere. Between my home and the Wilson apiary sweet clover grows plentifully, and always stands untouched except for a distance of half a mile. Through that half-mile, Stewart's cows are driven to pasture every morning, and home again at night. The sides of the road are covered with grass, and some sweet clover has grown there for years, but it does not grow as high as red clover, being *always, at all times of the summer*, eaten down by the cows. True, it blossoms and seeds, but in a very lowly way, while just this side the pasture-gate it grows six or eight feet high. Does that not dispose of your "certain stage of growth," friend Root? And is it not possible that those same cows—and they are well-kept cows—would eat more of it if it were in their pasture? It is common to find grasses that grow well in the South, and succeed poorly in the North; but where they grow also in the North, are they not as valuable as in the South? In Mississippi, Prof. Tracy says, "As a hay-plant it is certainly one of our best." One day I offered my horse, just as he was brought out of a good pasture, some dried stalks of sweet clover that had been cut, I think, just before blossoming, and, to my surprise, he ate down leaves, stalks, and all. I have read that, for a long time, anthracite coal was worthless because no one knew how to burn it. Possibly we may yet learn to make melilot valuable for pasture and hay. C. C. MILLER.

Marengo, Ill., Jan. 27.

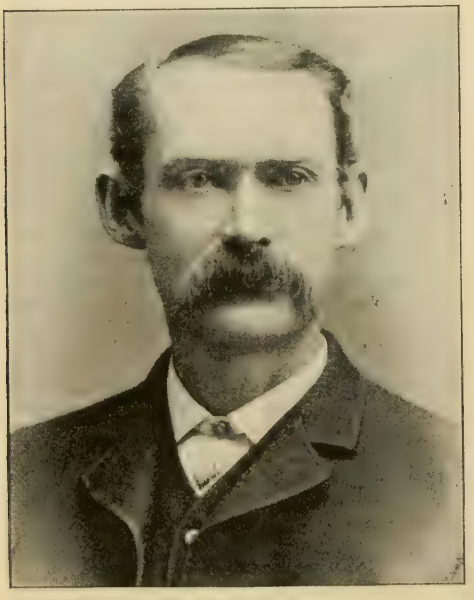
Friend M., some writer for GLEANINGS, a good many years ago, said sweet clover had been raised by the acre, and cured for hay, but that the plan was finally abandoned as unprofitable. As I have forgotten the name of the writer, I can not well turn to the article. I think he stated that it was introduced as a new forage plant, and raised

for a time on quite an extensive scale. Perhaps some of our readers can hunt up the communication, or give us facts in regard to hay by the ton, made from sweet clover, aside from the statement of Prof. Tracy.

BIOGRAPHICAL.

JAMES HEDDON AS A BEE-KEEPER, EDITOR, INVENTOR, AND POLITICIAN.

In revising the A B C of Bee Culture we found a number of wood engravings in the biographical department, more or less imperfect, and we decided that we would have all or nearly all of the subjects portrayed by the beautiful half-tone process, which, as our readers know by this time, is true to nature with all its beauties and imperfections. A blemish on the features, or wrinkles which sometimes seem to creep on the face rather sooner than they ought, are portrayed with all the accuracy that sunlight and shade can give. The wood engraving of our friend and correspondent, Mr. James Heddon, was a fairly good one; but the latter gentleman—or at least his family—did not consider it natural. We accordingly asked him to sit for another picture, which he has done. The result we append below:



JAMES HEDDON.

It is unnecessary here to give a biographical sketch of our Dowagiac friend, as one has already been published in these columns (see page 440, 1886), and an abbreviated sketch has stood through the last edition of our A B C book; but while I am about it, I take pleasure in saying that Mr. H. is not only a prominent and successful bee-keeper, but a man who occupies a prominent position in his own city. He says he has always entertained somewhat of a detestation for "politics." He has twice refused the nomination for representative of his county, in his State legislature, and once the nomination for senator from two counties, and several times that of alderman in his own city. In 1867 he ran for the office of mayor, without the least possible show of election, as he viewed it, and that, too, against a personal friend, who was well liked by his fellow-citizens. Mr. Heddon was elected. In March, 1887, he assumed the editorship of the Dowagiac *Times*, which paper he has conducted ever since successfully. Although a Democrat, he believes in the principle of a protective tariff; but he does not think that any line of manufactures needs it for any great length of time.

The article which we print in this present issue—see page 165—is quite characteristic of friend Heddon as a writer. He has a happy vein of telling what he has to say, and he also has an unusual faculty of making every thing exceedingly plain and easy to be understood.

Mr. Heddon is more conspicuous in the bee-world as having invented a number of bee-keeping appliances. He is the inventor of the divisible brood-chamber. Whether Mr. Heddon was the first one to conceive all its principles, I will not say. A number of its features are old, but they have been combined, as he claims, into a new invention. One of friend H.'s peculiarities is that he is quite jealous of his inventions, and is very particular that no one else shall even hint that he (Mr. H.) does not enjoy the exclusive priority. It were better sometimes, if he would exercise a little more charity. I do not believe bee-keepers are disposed to rob him of proper credit. Prominent among his inventions is what is known as the slat honey-board, which is now largely in use. He has also made some important improvements in shipping-crates. E. R.

RHEUMATISM, AND THE CAUSE OF ALL SUCH KINDRED DISEASES.

BEE-STINGS OF DOUBTFUL BENEFIT, AS CONSIDERED BY PROF. WEBSTER.

I HAVE been noting the various articles on the bee-sting as a remedy for rheumatism. The thought has occurred to me that a few words on the cause and nature of the disease in question might assist in arriving at a correct conclusion, and defining the value of the aforesaid remedy. The disease of which we write presents itself in several forms; viz., inflammatory, sciatic, articular, lumbago in the back, and gout; yet the cause is always the same—the presence of effete matter in the system, either uric acid or uric acid plus the soda of the system—urate of soda. The use of rich stimulating food, or excessive quantities of plainer foods, has so burdened the excretory organs that they are unable to do the work; and the next move in the economy of nature is to deposit this foreign matter where it will least affect the vital organs. Hence the muscles and joints become inflamed and diseased by these deposits, which must be expelled before any permanent cure may be expected, not only to get the acids out, but to prevent the formation of more.

This condition is brought about by the use of improper and excessive quantities of food, as we have said; consequently these poisons are formed from the partially digested food. Now, to us the idea of putting a specific poison into the system to expel or neutralize another, seems simply a matter of experiment, and very uncertain in its results. I am much of the same opinion as yourself, Mr. Editor, that any poison, whether taken out of a bottle or the business end of a bee, is attended with only doubtful results, and would best be avoided as far as possible. Medical science is progressive at present. We see that those who combat disease most successfully use but little medicine, but, rather, employ means which assist nature in throwing off this effete matter, and, by a restricted diet, prevent its formation.

Rheumatism which has not yet proceeded to the stage of hardening the deposits about the joints, is curable; but after the joints become enlarged and deformed, there is no process known by which it may be removed. We see that a plain diet, consisting largely of vegetables and grain, is best. The various combinations of baths, fomentations, electricity, and galvanism, used in connection with massage-oil baths, and the various movements, are eminently successful in the cure of all diseases where there is sufficient recuperative power to respond. Of recuperative power, says an eminent writer:

"The resistance, active and passive, of the physical system, to destructive agents, is wonderful. Huge wounds heal, leaving scars only. This is true of external and internal organs, including even the brain. A large part of a bone may be taken out, and the bone grow again; deadly poisons swallowed, and the various eliminating organs will throw them off, and destroy their power, often succeeding fully. Millions of people transgress every law of nature, and still live out half their days because of the unceasing struggle of the law of recuperation to undo the mischief."

Do we realize that this law of which the writer speaks is a law of God, and that we are accountable to him for every transgression? Ignorance is no excuse before the law in this case, and the penalty swifty follows; viz., sickness. Hygiene should be diligently studied by all who profess to be the people of God. It was intended by our heavenly Father that all should lead happy, healthful lives, and in his word he has given instructions. When Moses led out the children of Israel he was given the most perfect code of laws for the healing of all the diseases of his people, and God especially promised to bless all with health who followed his instructions. All who read GLEANINGS should study the laws of health. By so doing you will see what is the cause of so much ill health. The poison of the sting may be a means of relief in some of the early stages of rheumatism; but if the cause of the effect continue, how can any permanent relief be looked for? W. A. WEBSTER.

Crystal Springs, Cal., Jan. 23.

No doubt you are correct, Prof. W.; but will you excuse me if I ask if the medical gentlemen agree to what you have told us? As I went over your article, my mind went back to many points in my own experience, and that of others, strongly corroborating what you say, and not only in regard to rheumatism, but many other diseases. It may be true, that people sometimes are suffering because they eat too little; but I am inclined to think that the cases are almost a thousnd to one where the trouble comes from eating too much, because it depends largely upon the amount and kind of work one is doing, as to how much food he should take. Notwithstanding this, it is very hard to explain how relief could have come so promptly and perfectly unless the sting of a bee has some wonderful effect upon the pain in rheumatism. Has not God in his wisdom provided antidotes and remedies, even after we have transgressed his laws?

WIDE AND THICK TOP-BARS.

STAPLES FOR SPACERS.

ABOUT the time the Simplicity hive was introduced, the idea was advanced that top-bars of brood-frames should be as light as possible, that brood and super apartments might have the least intervening space, thereby causing the bees to more readily enter and fill the supers. This theory has some plausibility so far as inducing bees to enter and begin work in the supers; but if delayed from working above a day or two longer on account of extra intervening space between, the work goes on more rapidly after it has begun; and it is not necessary to explain to the practical bee-keeper why this is so.

When I began to use the Simplicity hive, the top-bars of my frames were cut out very thin. Soon after being filled, their appearance reminded me of an old sway-backed horse. At that time, wide frames were used to hold the sections; and as these were being filled, the spaces between were evened up also, with strips of comb honey. This trouble was exasperating, haunting me even in my dreams. Becoming desperate I determined to tear off every top-bar I had and replace with others sufficiently heavy to hold up under a reasonable weight. This work I did in April during warm days, and with no particular annoyance to the bees. At that time I was using hives 15 inches wide, with 10 frames in the space, which was permitting too much space between frames. This was reduced by using a division-board at one side. With this new order of things, and only a ¼ bee-space between brood-frames and sections, little trouble from connecting combs was experienced.

Soon after this, more by accident than otherwise, I learned another fact which helped to convince me that width of brood-frames is important in preventing burr-combs between apartments. A gentleman who was about to move away from the farm he had sold, came to me to see if I would buy his bees, offering them at a low price. I did so without seeing them. They were in double-walled L. hives; and when I brought them home and took off the honey-boards I found that the top-bars of the frames were so wide as to make it a tight squeeze for bees to get between them; but as the honey season was about at hand, I did not then stop to cut them down, but at once placed ¼-inch-square sticks across the ends, and put a case of sections on each hive. In a few days bees were at work, rapidly filling up. As soon as pretty well filled with comb they were raised, and another case placed beneath. After all were finished I was surprised to

find absolutely no connecting combs above the brood-frames; and why? "No place to put them." Next. Now, I had better say, further, that these top-bars appeared to have been made from common lath planed down to what the builder of these hives thought to be about the thing, and were but little if any more than ¼ inch thick; but on the under side of these wide bars were triangular comb-guides, fully ¾ of an inch thick. Whether these heavy comb-guides had any thing to do with the prevention of burr-combs, I am not able to decide positively; but I place more stress on the close spacing, and some on extra width of top-bars.

I would have continued experimenting on this problem; but some years ago I went out of the production of comb honey, as I found I could produce in my locality twice as much extracted, which is always sold at 15 cents per pound, making honey-raising in this way doubly profitable to me.

FRAMES HELD AT FIXED DISTANCES.

The use of staples in the manner illustrated and explained by Mr. Phelps, for the purpose of holding frames at fixed distances, is ingenious, simple, and inexpensive. I can not think that the use of frames at fixed distances will ever become general; and whenever any one begins to talk of a system for holding frames at fixed distances I begin to get uneasy. I suppose this feeling was engendered by the use, many years ago, of the close-fitting top-bars of the American hive, and from the temper-trying experience of extracting honey from some hives with their frames arranged at fixed distances by the use of staples and nails. I want a sharp knife for uncapping; and to see a staple or nail about a frame when I am slashing hurriedly a razor-sharp knife, starts my blood to crawling.

I have a good deal of hauling to do every year, moving bees from one point to another; and when the frames look as though they might not stay in place, I fix them down by putting stout pieces of frame-stuff across each end of the frames, just over the rabbets; and by the use of two or three pretty good screws driven into the rabbets these pieces of wood can be pulled down tight enough to keep the frames in place. If thought necessary, staples might be put into these strips to keep the frames in place in moving bees; but, keep the staples out of the frames.

The end-boards of the upper stories of my hives are rabbeted on both [top and bottom] inside edges, which arrangement permits the placing-in of the strip above alluded to, as well as permitting the enamel cloth or quilts to go out over the ends of the frames. J. A. BUCHANAN.

Holliday's Cove, W. Va., Feb. 3.

You have made some good points, friend B., on the matter of the prevention of brace-combs; and it is interesting to know that you have had experience these years in the same line. A multitude of testimonies coming now, establish the fact almost beyond doubt that burr-combs can be dispensed with without a honey-board. With the latter we shall have them between the top-bars and the slats of the board. With wide top-bars there are absolutely no burrs, providing the frames are spaced $\frac{5}{16}$ inch apart, so that it is not only possible to dispense with a honey-board, but we have a great many less burr-combs.—The point you make in regard to staples interfering with the honey-knife for uncapping is well taken, and that alone would almost forbid its use among those producing extracted honey. But we can, friend B., drive these staples into the rabbets, and space the frames apart that way, and yet do away with all hitching and interference with the honey-knife. If we have the top of the frames so that they can not shuck about, we shall not have very much trouble, ordinarily, from the bottoms knocking together. What we want is a staple ¼ inch wide, driven into the rabbets at such distances as will space the frames just $\frac{5}{16}$ inch apart. A quarter of an inch would be better than staples $\frac{5}{16}$, because we need a little play on account of propolis accumulations. With this close spacing we need accurate spacing; and the staple will not only keep the frames fixed, but accurately spaced. Ordinary blind staples, which can be had at almost any of the hardware stores, will answer. E. R.

In addition to the above, I would say that, come to think of it, it was these blind-staples in the way of the honey-knife that was largely instrumental in inducing myself and others, nearly twenty years ago, to pull them out and throw them away. And, by the way, will not the Van Deusen metal corner be open to the same objection? Will friends Hawk and Hetherington tell us about this?

TOP-BARS OF BROOD-FRAMES.

FRIEND DIBBERN'S EXPERIENCE.

I HAVE been very much interested in the discussion of the wide thick top-bars for brood-frames. If the question is not yet ruled out, I wish to add my mite of information on this interesting subject.

Some years ago I came to the conclusion that I must have a new hive, and somehow none of the standard hives suited me as a whole; so I went to work and planned a hive after my own ideas. I used tops *and bottoms* of my brood-frames 1 x ½ inch, and they have given very good satisfaction. I adopted this size more on account of strength, to prevent sagging, than as a preventive of burr-comb. As my frames are 1⅜ from center to center, there is just ⅜ inch between combs. After reading the Jan. 15th GLEANINGS I had about concluded I would order the next lot of hives with 1⅛ wide x ¾ thick top-bars; but after examining some five or six hives that have had bees in for the past two and three years, and finding *almost* no burr-comb at all, I decided to leave the width at one inch, but make the bars ¾ inch thick. Still, after examining the combs critically, and noting that the comb, where sealed up with honey, projects about $\frac{1}{16}$ beyond the wood on either side, I have decided to make a part of my hives for next season with 1⅛-inch top-bars, with ¼ inch between combs. I shall then be able to reach an intelligent conclusion on this point.

While a great deal has been written about the tops of frames, bee-spaces, and honey-boards, I am surprised that something has not been said about the *bottom-bars*. Are they "all right," and entirely unobjectionable? How about the space under the bottom-bars? and what about the width of the side bars? Some of my old L. hives have given me as much trouble from burr-comb at the side and bottom as at the top. I am aware that most of the trouble comes from faulty construction. But,

what is correct, to obviate all this difficulty? I am not troubled in this respect in my new hive, but I know that many of the standard hives are not perfect in these points. Now, while we are about it, let us overhaul the whole hive. What say the readers of GLEANINGS? C. H. DIBBERN.

Milan, Ill., Feb. 3.

Your testimony, friend Dibbern, is another drop in the bucket that establishes the value of wider and thick top-bars. On account of the difficulty of getting lumber of odd thicknesses we decided to make top-bars ⅞ inch thick, as a good many seemed to prefer them so, but more particularly because ⅞ lumber, after being rabbeted out, can be ripped up into bars one inch, 1 1/16, or 1⅛. In regard to the bottom-bars and end-bars, we decided to use only ⅞ lumber, particularly on account of cheapness. Were we to make them of the same width as the top-bar, we should have to charge considerably more per hundred for the frames. There may be some advantage in having wide end-bars; but we hardly think it is enough for the extra expense. However, we shall be glad to hear from our readers on this point.

E. R.

DEEP TOP-BARS.

JAMES HEDDON ARGUES IN FAVOR OF HONEY-BOARDS YET.

FRIEND ROOT:—With pleasure I have been reading February 1st GLEANINGS. I see that our friends feel more and more positive that the deep top-bars are going, once and for all, to settle the brace-comb trouble. I have to laugh at their enthusiasm over this new thing, as it seems to be to most of them, although it is so old a one to me. You will find that the depth of the top-bars has very much more to do with discouraging brace-combs than does the width of it. If I were bound to space my top-bars just 5/16 apart, I would use them only ⅞ wide, and then put more combs into a hive. Don't you see, that, the more space you give a comb, the more apt the bees are to store honey just below the top-bar? Of course, you know that, where the top cells of the comb are used for honey instead of brood, brace-combs are much more apt to be built in between the top-bars and between their top surface and the receptacle or cover above.

Let me tell you how you can arrange top-bars to prevent brace-combs with almost as much certainty as the break-joint honey-board will do; but you will not do it, because there are serious objections which you will see at a glance.

Make your top-bars ¾ or ⅞ of an inch deep before the bevel begins, if you use a bevel. Place them just 5/16 apart, but do not have the top-bars more than ⅞ wide. This will give you closer spacing of your combs from center to center, and that alone will help you materially. Now make section boxes just as wide as the distance of your top-bars from center to center, so there will be just as many openings between the sections as there are between the top-bars in the hive. Now make these openings exactly break-joints with the openings between the brood frames, the same as the honey-board does, and you will have but few more brace-combs than you would have above the honey-board. But don't you know, friend Root, that no one wants to use such narrow sections? and that settles that; but, at the same time, it is a fact that that arrangement, and that only, will come very near to the delightful condition of affairs regarding brace-combs which is so anxiously hoped for without the use of the honey-board, by your enthusiastic correspondents in last issue.

Let me now tell you what I believe I know is the best method, and I have a number of hives arranged accordingly, which I have had in use for years. Use a top-bar ¾ or ⅞ deep. Do not space them more than 1⅜ apart from center to center, and 1¼ will do very well. Use the break-joint bee-space honey-board above them, and any kind of sections you prefer above that. Let your bee-space in the honey-board and in the top of the hive below the honey-board be ⅜ scant, or 5/16. Then you are safe against brace-combs above the honey-board. You will have much less below the honey-board; you will have a solid top-bar that will not sag; one in which bees will build nicer, straighter combs, when they are not compelled to build them so by the use of wires and full sheets of foundation.

Please mark this article with a blue pencil, and put a book-mark in your file; and by and by, when the excitement of deep top-bars is all over and settled, take a vote and look back and see if what I here state is not just what will then be the prevailing sentiment. I think my locality is much like others, and my bees have much the same instincts. I have experimented years and years upon this point—yes, upon every part of it, that I find mentioned in GLEANINGS. Honey-boards are a blessing which came to us long ago, and came to stay, multiply, and cover the earth.

We have all had "la grippe" here, but no deaths in our little city of 3500. The open winter is especially mild, and free from snow, in this locality. Bees are in perfect condition out of doors, and I am lucky enough to have over four-fifths of mine out. My 70 colonies in the cellar are apparently in very good condition, but I know they are not as strong as those outdoors. My son Will, who wrote you the article on paper packages for extracted honey some months ago, I suppose we shall lose from our family of bee-friends, as he is studying electrical science, and takes charge of our electric-light plant which is just now being completed in this city.

Dowagiac, Mich., Feb. 10, 1890. JAMES HEDDON.

You say you had to laugh at the enthusiasm of the advocates of thick top-bars, because the subject is such an old one to *you*. Please don't laugh just yet, Bro. H.—at least not right away. In the progress of the times, *good* things like the honey-board, that have served their purpose *well*, are sometimes discarded for something better. It is really astonishing that so many have tried these heavy bars for so many years, and liked them, and these same people say, too, they never had any brace-combs, and, of course, have no need of a honey-board. So many testimonies are coming in to this effect that it will be impossible for us to publish them all, however valuable they may be; but the few that we do give place to are a pretty fair sample of what we receive. Heavy bars are not a new thing: they are only being brought to public notice. Yes, the closer the spacing the less burr-comb there will be. But that will not

do it alone.—As you have brought up the matter of the break-joint feature in your honey-board, allow me to say (with no desire to provoke discussion) that I never could see that it made a bit of difference whether the slats were break-joint or directly over the top-bars. Perhaps my experience has been limited. But Dr. Miller (and he is a very candid man) says he can not discover that there is any value in the break-joint. A very prominent bee-keeper of your State, with whom I had the pleasure of a couple of hours' conversation in regard to bees and bee-keeping, while we were on the subject of honey-boards told me that he had tried them with the slats both on the break-joint and continuous-passageway idea, but he was unable to detect any difference. I should be glad to give you his name, but perhaps he would object to my lugging him into print in this way, as he is a very good friend of yours. Dr. Tinker, in the *Apiculturist* (p. 18), goes even so far as to say that there are *more* burr-combs from the break-joint than there was from the direct-passageway plan. Now, we will admit that your honey-board has been a *good thing*—a blessing, etc.; but it does not go more than half far enough. With thick and wider top-bars we can do away with burr-combs *altogether*, if scores of good witnesses are reliable; but with the honey-board, one of the bee-spaces is *entirely* filled. While it is *possible* that the deep top-bar has stirred up an undue excitement, yet there is so much in it, evidently, that bee-keepers north and south are mightily pleased with it—yes, those who have tried them for *several years*. Your prediction, that your honey-board has "come to stay, multiply, and cover the earth," *may* come true; but I must confess that I consider this a rather confident assertion for the future. E. R.

BABY BEES IN WINTER.

H. R. BOARDMAN EXAMINES HIS BEES.

YESTERDAY was a pleasant day. The sun shone out clear and strong, and the mercury stood at 56° in the shade. I worked among the bees, opening hives and taking out combs for examination, with as much comfort as I should in June. Such a treat is really refreshing to me, whether the bees enjoy it or not. I had set several colonies out of the bee-house for examination, which I frequently do to determine just what is going on; also a few were left out on the summer stands so I might be able to compare results of the two ways of wintering.

I examined eleven colonies—seven taken from the bee-house, and four that had been left out on the summer stands. Ten of the number had more or less brood. The queens were laying freely. In several colonies, young bees were emerging from the cells, and quite a sprinkling of young baby bees could be seen moving timidly about in the crowd. I have never seen the like before at this time of year. I have often found brood in a hive occasionally, as early as January, but not so general and in such abundance. I presume we may take this as an indication of the general condition of the bees all over the country—at least, so far as the mild weather has prevailed.

Those who insist that early breeding is followed by unfavorable results in wintering, please stand up and tell us what we may expect from this unusual condition. For myself, I feel no alarm about it, if *only* there are sufficient stores, as, of course, an extra amount of stores will be consumed.

H. R. BOARDMAN.

East Townsend, O., Feb. 1, 1889.

Friend B., why don't you tell us which wintered best of those you examined—those indoors or out? and how about the comparative consumption of stores during this exceedingly mild winter?

REVERSIBLE EXTRACTORS.

ANOTHER GOOD TESTIMONIAL FOR THE STANLEY.

I SEE there is quite a little talk just now about extractors; and as the Stanley comes in for its share, both pro and con, I thought I would give my experience. I bought a four-frame Stanley in the spring of 1887, purely on the recommendation of Prof. A. J. Cook; and I will say right here, I have never regretted so doing. It is not a geared machine, consequently it turns easily. In the month of July my 16-year-old sister will extract all the honey we can get to her. But when I do my fall extracting—that is, from my surplus combs, usually about the first of September, then it requires a man to operate it, because the weather is cooler, and therefore it needs harder turning.

The season of 1889 was the first honey season we have had since I bought the machine. My crop this year was a little over 10,000 lbs. I have *never* had a comb broken in the Stanley, nor do they become imbedded in the wire baskets so as to tear out when being lifted up.

Friend Osborn speaks of the baskets on his becoming tangled when reversing. I can work mine all day and never have them tangle once. When I first got mine, before I learned how to operate it, I made mine tangle, and I was quite vexed; so I went and got Stanley's letter and read it over again. He said, "When you want to reverse, slow down gradually. Stop. Let the baskets swing past the center-shaft, *then reverse*. Do it in a somewhat slow and lazy manner." Every person who has ever taken hold of my Stanley to work it has always been in too great haste to reverse, and, as a result, some baskets are jerked off from their hooks, or they become tangled. I think some one mentioned that it was unhandy about putting in and taking combs out. I experience no difficulty in this respect. Perhaps it is owing to the frame I use. I use the Gallup. The operator picks up a comb by the center of the top-bar, with his right hand, and with his left swings the comb-basket to the outside of the extractor, then lowers the comb in.

It is possible that the Stanley is not the best extractor on the market, yet I have seen the U. S. and the Novice, and several home-made machines, but I have not seen any that I would be willing to trade my Stanley for yet.

CARRYING BEES OUT OF THE CELLAR.

I see quite a good many of the brethren who practice cellar wintering advise putting the bees into the cellar without any bottom-board to the hives. I should like to have them tell me how they manage in the spring to keep the bees from getting in an uproar when being placed on their sum-

mer stands. Do they hibernate so perfectly, and are handled so quietly, that they are not disturbed until the warm rays of old Sol arouse them to their surroundings? H. L. ROUSE.

Republic, Ia., Feb. 10.

We are glad of the facts you furnish in regard to the Stanley extractor. You do not say, however, whether you have *used* to any extent the Novice or any other extractor. We do not anticipate there would be any trouble carrying hives without bottoms out of the cellar. However, we should like to hear from H. R. Boardman on this point.

A HISTORY OF THE ITALIAN MONARCHY.

CONTRIBUTED TO AND READ BY THE PENN COLLEGE ORATORICAL ASSOCIATION AT OSKALOOSA, IOWA.

ONE day, as I wandered among the people on my father's plantation, I observed a very busy group of Italians. Noticing the peculiarity of the workers, I became inquisitive and greatly interested, and I have compiled this summary of their habits, life, and government.

These busy workers have a queen to rule over them, to whom they yield implicit loyalty. Among these people the females perform all the productive labor, while the others lounge around on the avenues and take it easy. These ladies are armed with deadly weapons; and should the work slacken, and famine threaten the community, they will use these weapons and destroy all the non-productive members of the community, old and young. Just let these so-called "lords of creation" trespass where they are not wanted, and they will speedily find these irritable ladies after them, and a quick retreat is their only safety.

No strangers are permitted to cross the border of their domain without a formal introduction, and without being closely watched; for they will be quickly arrested, and perhaps killed, or left in a dying condition. Whole armies are put to flight, and the greatest warriors flee from their attack. Take heed to your standing, ye reputed heads of creation, lest the ladies trample your laurels under foot, and bring you wholly under their rule.

The palace occupied by this empress queen is a very ingenious structure, having but one entrance. The apartments are numerous, and constructed with mathematical precision and skill—finished off with admirable taste and beauty, decorated in hues of amber and gold. Many halls and corridors are found in this wonderful structure.

The temperature is nearly uniform, and is produced by natural and not by artificial heat. No dust is allowed to accumulate in their apartments, and their storerooms are mostly filled with the good things of the land. Her Majesty's subjects prepare three kinds of food—one for the royal princesses, another for the gentlemen, and the choicest for the ladies. Each member is entitled to a room until of age; and they are served in these rooms with food. The apartments are of different dimensions—the smallest for the ladies, the larger for the gentlemen, and the largest for the princess royal.

When arrived at full age, the workers take them in charge; and after a ceremonious inspection they are set at liberty to work out their own destiny. The young princesses must leave the palace immediately, and establish a government elsewhere, or the queen regnant may abdicate, or else war will ensue, and end in the destruction of the princess.

Sometimes the princess will collect an army and wage war against the queen, and fearful battles ensue, leaving the field covered with the dead and dying.

The youths are always dressed in white till they are nearly of age, when they assume a dark dress, and ultimately they are arrayed in drab, ornamented with golden bands.

This is a very imperfect sketch of one of the most interesting and suggestive works of creation, hitherto baffling man's ingenuity to find out in all its parts the why and the wherefore of this and that, leaving him to ponder over his finite powers and to realize the truth of the saying, "Thus far shalt thou go, and no further."

Viola, Ia., Jan. 29. MRS. ATHANISSA SHAW.

My good friend, you should suggest to Bellamy, the author of the new book that has been making such a stir, that a hive of bees will give him a precedent for the new state of affairs he has pictured so graphically.

MY EXPERIENCE WITH CARNIOLANS.

AN ADVERSE REPORT AS TO THEIR TEMPER AND HONEY-GATHERING QUALITIES.

I RECEIVED six Carniolan queens, June 20, 1889, and introduced them successfully. The queens are very prolific. They were introduced to hives that were hardly strong enough to put on surplus boxes; but by the time that buckwheat was in bloom they were the strongest hives that I had, so I expected great things from them. But I was greatly disappointed. The air castles which I had built began to tumble. I looked often for the honey which they did not bring in; but my expectations ran high. I could see that they were industrious from *outside* appearance, working in rainy weather when the Italians and blacks were in the hives. They were very gentle until I came to take off the surplus honey. I knew the honey was there somewhere, for I knew that they could not work the way they did and do nothing. Well, I approached the hives with smoker, two-inch chisel, and veil. Of course, I knew there was no use for the veil, but I took it along from habit. Well, I gave the first hives a few puffs of smoke, then smoked them mostly out of the boxes; then I put the two-inch chisel under said case of boxes, and began prying. Well, after considerable hard work I got one end of the case up. The bees, about that time, became furious. Nothing would satisfy them but my making myself scarce. I took for the cellar, the place where I used to go when I began the business, and had a poor smoker. I got possession of the case after a while, but the honey was under the boxes in the shape of burr-combs. I at last succeeded in getting all of the cases off; but, what an appearance they presented! Those six hives had nearly as much brace-comb built as my 70 other hives. I got about two cases of buckwheat honey from the six. I got more than that from one hive of hybrids. I got most of my honey from buckwheat. The boxes presented a very uneven appearance. They would have from 9 to 13 ounces of honey in them, while my others would average about 14½. I got rid of

the honey by selling it at two cents less a pound by weight, and taking trade for it. I think they are the ugliest bees I ever saw or had any thing to do with, out of the honey season. You can not look at their hive at that time but that they will come for you. G. J. BROADBENT.

Factoryville, Pa., Feb. 15.

Your experience tallies very closely with a couple of queens we tested last season. Still, the majority of the Carniolan queens may be better.

THE WISCONSIN STATE BEE-KEEPERS' ASSOCIATION.

HELD IN MADISON, WIS., FEB. 5, 1890.

IT has been for some years the custom of our Wisconsin friends to have a session of only one day. Another year, however, they propose to devote two days to it. Our friends will recognize many of the officers, from the mention I gave during my visit to Wisconsin last July. The president, C. A. Hatch, was unfortunately attacked by the grippe just as he arrived at Madison the evening before. He, however, stayed with us most of the time, although he looked so pale and sick that we all felt sorry for him. The president's address covered quite thoroughly the whole ground of bee-keeping. One especial point he brought out was,

BEES DEAD AND DYING AROUND ON THE GROUND DURING THE MONTH OF JUNE.

Considerable discussion arose in regard to the matter of dead and dying bees that were found around the apiary during the opening of the white-clover bloom last June. This phenomenon seems to have appeared about the same time in a great number of apiaries, north, south, east, and west. Various suggestions were offered as to the cause; but when we all got through, I believe the testimony was the strongest in the line that *lack of food* was the cause, and that they either came so near starvation as to crawl out of the hive in a helpless state, or that the brood had lacked food in *some stage* of its growth, so as to weaken the vitality of the young bees. Several of the friends thought this could not be possible; but so much testimony was given of finding hives without a drop of honey, that it seemed to be the most reasonable explanation. I remember that, some years ago, during the month of June, when our bees were rearing a tremendous sight of brood, I would often find hives in the morning without a *cellful* of honey to be found. Before night, however, the combs would be apparently pretty well filled; that is, more or less honey would be seen sparkling in nearly every empty cell. The quantity of brood was so large, however, that it was all consumed during the night; and when morning came, *again* not a cellful could be found.

CARNIOLANS.

Rev. T. E. Turner read quite a lengthy article in regard to the Carniolans. My impression was, some time before he got through, that he was giving them very much more credit than they deserved. When he wound up by claiming that they could be handled at all times and under all circumstances, without veil or smoker, I felt sure that somebody would reply. The reply came from the vice-president, Rev. Mr. Winters. He narrated, in a comical way, the tremendous amount of trouble in the way of stinging he had with some Carniolans that came from the writer of the above article. Mr. Turner explained that the bees in question were not *full-blood* Carniolans, but only hybrids. In reply to a question he said the hybrid Carniolans were the worst bees to sting we have. In his paper he admitted that more or less yellow bands were found among the Carniolans; whereupon somebody asked how he could tell by the *markings* which queens were pure and which were hybrid. He replied that nobody could tell any thing about their purity by their markings. This created considerable merriment. On further questioning he said the only test was their temper; and I believe that this seems to be one of the most fatal objections to the Carniolans. Unless we import a queen for every hive in the apiary, we can have no assurance that our bees are pure. Our readers are perhaps aware that we have been testing Carniolans ever since they came to our country, and we never have been sufficiently well satisfied with *any* of them to think of offering them for sale. The greatest fault we have with them, however, is that they are *not* good honey-gatherers. See the preceding article.

We were all very sorry to find that Mrs. W. J. Pickard, and also our good friend E. France, were both unable to be present.

S. I. Freeborn's excellent paper on overstocking will be found elsewhere in this issue.

In regard to the social and humorous part of the convention, our friends in Wisconsin are not one whit behind those in Michigan and other States in good nature. Quite a few of the bee-men of Wisconsin are old-countrymen; but their genial good nature and readiness to joke with each other put us all in the best of spirits very soon. Dr. Miller said he was not feeling very well when he came in; but he laughed so heartily that it shook out the headache and every thing else; and even the parting twinges of the grippe that still clung to him had to give way and *let go* in the presence of so much merriment. I laughed so much several times that I really felt sore.

It was certainly a pleasure to see and talk with, face to face, the three Franks who were judges of the honey-exhibit—Frank McNay, Frank Wilcox, and Frank Minnick. Our good friend Dr. J. W. Vance also, besides being secretary, contributed largely to the interest and profit of the occasion. F. L. Snyder, whom I have mentioned several times before, was also present; but he did not get over his bashfulness so as to talk very much to us during the convention. Mr. B. Taylor, of Forestville, Minn., contributed a good deal to the meeting. He brought a model of his bee-hive, which he has had in use for 25 years or more. He calls it the "Handy" hive. Fully 25 years ago he formed the idea of having the surplus apartment exactly like the brood-apartment

—that is, so far as size and shape were concerned. Of course, the brood-combs would have to be made shallow in order that they might answer tolerably for holding the frames small enough for surplus. Accordingly he makes all stories of his hive so as to hold a frame only 4½ inches deep. This depth was decided upon from the fact that fence-boards 6 inches wide were always to be had, of pretty fair lumber, and at a comparatively low price. The hive is made with beveled joints, to keep out wind and rain, and to keep them in place, very much as I designed the Simplicity hive originally; but his hives are (as mentioned) only about half the depth of the regular Simplicities. As he makes the hive square instead of oblong, the shallow frames contain from three to four pounds of comb honey. He has a special mode of manipulating them so as to get large yields of surplus comb honey, and, also, so as to manage artificial swarming in a very expeditious and certain manner. He winters in the cellar, and prefers only *one story* for wintering, even with combs only 4½ inches deep. Before his explanations were given, a good many said he had been copying Heddon's new hive; but it transpired, however, that he had been using these hives by the hundreds for many years *before* Heddon's patent, and so these charges were withdrawn. Mr. Taylor has been an extensive customer of ours for a good many years. When I asked him why he had never given us a description of his hive for print, he said he had done that very thing, but for some reason or other "we editors" had decided not to publish it. As he is located quite a distance from his railroad station, he does not make *hives* for sale; his sole business is raising honey.

SPREADING BROOD.

FRIEND DOOLITTLE REPLIES TO MRS. HARRISON.

WELL, surely Mrs. Harrison is having a hard time in picking that old "crow" (see page 93 of GLEANINGS). It would naturally be supposed that Mrs. H. had lived long enough to know that "tough birds" pick more easily after immersing them in boiling water—water heated by strong arguments, backed up by years of practical experiments along the line under discussion, rather than giving them a bath in the cold water of one failing experiment. No, Mrs. H., you can never get out those wing and tail feathers in that way. The top of my shiny pate shows that the tenderer (feathers) hairs have been pulled out, but I shall protest most furiously against losing the rim of hair left around the out edges, let me assure you. Now, joking aside, I wish to thank my good Sister Harrison for bringing up this subject of "spreading brood in the spring," for it gives me a chance of saying a few words on the subject which I have wanted to say for some time, yet I saw no good opportunity for so doing. If in any article that I have ever written I have conveyed the impression that an indiscriminate spreading of the brood would be of value, either to the novice or the expert, I wish to take it *all back*, for I never wished to convey any such idea. In some of my articles I have placed the time of commencing to spread the brood at about May 1st. This was done with the expectation that *each one* would use judgment, that judgment to be based upon his locality, the condition of the bees, and the advancement of the season. For instance:

One season, when the first day of May arrived, there was not a particle of brood in any of my hives to spread. For me to have tried to spread the brood at that time would have shown that I was devoid of common sense. Again, in 1878, when the first day of May arrived, all of my hives were filled with brood and bees, some colonies having eggs and larvæ in the queen-cells preparatory to swarming. To have waited till the first of May before touching the bees, in such an early season as was that of 1878, would have shown that I was not "up and dressed" as I should have been. Once more: All the colonies in any apiary can not be treated alike. Take an ordinary year in this locality, the date being May 1st. In the first hive we open, we find a goodly number of bees, say enough to cover seven combs on a frosty morning. We open the hive and find brood in only five combs. The center comb of the five has brood in it all along the bottom and side bars, as well as at the top. The two on either side of it are two-thirds filled, while the two outer frames have brood in each, to the amount of one-third of a frame full. Now, practical experience, covering a period of 17 years, has proved to me that a gain of two days in bees can be secured by reversing those combs of brood, or, in other words, placing the middle combs, or those the fullest of brood, on the outside, and those from the outside, having the least brood in them, in the center. By this plan we have not really spread the brood, but we have placed it in such a shape that we have made an ample number of bees desire all the brood which they could care for; and the result is, that in about a week, or the next time we open that hive, we find those five frames all solid with brood—a state of things which would greatly delight any bee-keeper. We now put a comb of honey, having its sealing broken, in the center of these five filled combs of brood, which so stimulates the bees, when removing it, that, should a cold night now occur,—yes, or two or three days of cold weather,—the bees will be so active that the required temperature is kept right up, and a gain of two or three days more is made. So we keep on with this colony till the hive is filled with bees and brood, *one week*, at least, earlier than it otherwise would be; and when this week of bees comes at just the right *time* for the honey harvest, they will make all the difference between a full crop of honey and half a crop, or, in extreme cases or short seasons, no crop at all. Have I not, then, received pay for my trouble?

The next hive I come to gives off a light buzzing sound, scattered down between two or three spaces of combs, thus showing that there are but few bees in that hive, for I do not know that I ever opened a very weak colony of bees without hearing this sound. I know that it is weak *in bees* from this, but am surprised to find that they have brood in three combs: and the wonder is, that the bees have held that brood as well as they have. Now, should I treat this colony as I did the first, the veriest novice, standing by, would say, "Doolittle, you have lost your reason." This colony has all of the brood crowded together, so that there is only just space enough between the combs for a single tier of bees to stand, similar to the contraction plan as recommended by Bro. J. E. Pond, and the bees are shut

on these combs of brood and tucked up as warm as possible, so that they can hold this brood till it matures. Here they are kept till they have these frames filled with brood clear down to the bottom corners, and till the bees begin to crowd out beyond the division-board, when it is time to treat this colony the same as we did the first, and they should not be so treated *one day earlier*. From what Mrs. H. says about the "remnants" she practiced upon in trying the "Doolittle" plan, I think she will see why she did not succeed. Once more:

In the spring of 1875, about the 15th of May, I went down to Bro. Betsinger's to borrow $300 to put with $600 which I had to build the house I now live in; for, after paying $600 for the land where was to be located my future home, the former $600 was all of my earthly possessions, except some household furniture. Upon arriving at B.'s I found him spreading brood and handling his bees as if it had been June, for the place where he then lived was a very sheltered one. When I came home and went out into my bee-yard, here in "old cold Spafford," as this town is termed, and looked at my 46 remnants of colonies, only two of which had brood and bees enough in their hives to call colonies, I was thoroughly discouraged. I went to the house, sat down, put my elbows on my knees, and my head on my hands, and thought. Now, according to the verdict "of the heavy producers" at the Michigan Convention, lately held, my conclusions should have been, "Take $100 of the borrowed money and buy bees with it, not fussing with them or those you have; for what *you should be after is, the greatest amount of money with the least expenditure of labor*, for time is money." Instead of this, after a few minutes I said, "$900 is too small to build such a house as I want; I can not run in debt more; those bees must receive my very best care, give me a living, and help on building a better house than I now contemplate." I arose, went to work in accordance with the above, gave them the attention they needed *just when it was needed*, according to my best judgment, and in the fall I had almost $1600 as my pay, they producing an average of a little over 106 pounds of comb honey per colony, spring count. This paid back the borrowed money, gave me a little to lay aside for a "rainy day," besides building a better house than I had first planned, and putting into my life an ambition never before enjoyed.

The idea advanced by some of our brethren, regarding the greatest amount of money with the least expenditure of labor, has a smattering of the thought that "bees work for nothing and board themselves." The thought seems to be, that the same labor given to 200 colonies in producing 5000 pounds of honey is better than the same labor spent on 50 colonies to produce the same amount. This is an unprogressive idea, and one that should not be tolerated by any one who wishes to rise in the world. It is only on a par with the rule so often adopted, of poorly working four acres of land to get the same results obtained by friends Root, Terry, and the late Peter Henderson, from one acre. Why, Mr. Terry would not care for a hill of potatoes as some of these do for their bees. He believes in planting his potatoes in the right time, fertilizing and cultivating the ground and the plants in the right time, while the fighting of the beetles and their larvæ, digging and caring for the crop, etc., are all alike thoroughly looked after. Because some one, or the multitude says, so much fussing is not in accordance with the greatest amount of money with the least expenditure of labor, does not affect Mr. T. or his progressive ideas in the least, for he proves to himself year by year that his is the course that an intelligent man should pursue, not only as far as dollars and cents are concerned, but in lifting mankind up out of the slipshod way they have been in the habit of doing things, and putting an ambition in them which causes them to look away from self out toward a higher and nobler life, which contemplates a love for the beautiful and progressive, for mankind in general, and for the Creator of all which we enjoy, in particular. Just so regarding the pursuit of bee-keeping. Letting the bees "manage their own domestic affairs," as Mrs. H. proposes, is only admitting that we are not capable of doing things at just the right time and in the right place, and has not an atom of soul-stirring thought in it, or any thing which looks toward attaining in the future any achievement not obtained in the past. Brethren and sisters, don't let us settle down on any such ideas of non-progression, but, rather, let us say, "Nothing is impossible in this progressive age." Now, Mr. Editor, if you consider this article too fiery or too long, so arrange the articles which you publish that no one shall pour cold water on that "old tough crow" when they attempt to pick him again. G. M. DOOLITTLE.

Borodino, N. Y., Feb. 17.

ADAPTING T SUPERS TO THE DOVETAILED HIVE.

DR. MILLER GIVES US SOME WISE COUNSEL.

THE veterans who have been raising honey for years are pretty well settled as to the appliances they shall use. They have learned what suits them, or they have become so accustomed to what they have, that they think nothing else can be better. Even among them there is found more or less reaching out after something better, so that what may be accounted the best appliances to-day may be superseded in a few years by something quite different. This being the case, so much changing, so much difference of opinion among those who have settled upon what they think best, I do not wonder that the beginner may feel much distracted in trying to settle upon what fixtures he shall use. In the hope of helping such a little, I have undertaken to write this article.

Now, Mr. Beginner, I must tell you plainly in the beginning, that I don't know all about what is the best for you to use; and if I thought any one else could, I would not trouble you with this talk. But I can talk a little about some general principles, and this may be of some use to you. My experience has been mainly with comb honey, which will limit my suggestions somewhat to that side. You have dabbled a trifle in bee-keeping; have read the differing views of bee-keepers, and have formed some theories of your own, and one of the first things you are likely to do is to plan a hive and appurtenances thereto belonging, that embodies all the best principles, and that shall differ from all hives already made.

Now for a first word of advice—*don't*. Won't take my advice? Know more than anybody else, and can get up something away ahead? All right; go

ahead; and after you've kept bees for a year or so you'll not be so smart; and it may be time enough then to read the rest of this article. Now, after you've got through inventing the Great-Eureka-warranted - not-to-rip-ravel-nor-run-down-at-the-heel hive, let me advise you to commence with one of the hives already in use. It really does not make such an immense difference what kind of a hive you have, so far as the bees are concerned. They will store about the same amount of honey, whether you shorten or lengthen your frame the hundredth part of an inch. But it does make a difference whether your hives are all alike, and you will find it quite troublesome to change from one hive or frame to another. There are two things so generally in use that they have become a kind of standard. One is the frame 17⅝ inches long and 9⅛ deep, outside measure; the other is the one-pound section, 4¼x4¼. I use a frame ⅜ longer and ⅛ shallower than the one I have mentioned. I don't know that it's either better or worse; but I'd give quite a little if all my frames were of the standard size. In that case I should be more like others, and it is so much more convenient to be able to order goods of standard size that are always kept in stock. But having commenced with an odd size, each year that I increased the number of my hives made it harder for me to change. So, try to start so you will not want to change. If you settle on the frame and section, then every thing else must conform. As many of the readers of this journal may be influenced by what has been said in its pages and in friend Root's price list, I will comment thereon. Much has been said in favor of chaff hives, and I don't blame friend Root for speaking so highly of them, because he has succeeded so well with them himself; and if I lived in Medina I suspect I should be a chaff-hive man; but being where I think I can do better to winter in a cellar, I think I am not likely ever to care for any thing much different from the Langstroth hive. Most of the improvements made upon it at different times have been not improvements. The Simplicity is really a Langstroth, but some things about it are not liked by some as well as the old Langstroth. The new Dovetailed hive is really a Simplicity, in my opinion; and in some things it goes back to the old hive. But I am afraid some may be misled to use with it the section-holder, who may afterward wish they had started with something else. It has been recommended, and I think it likely that a very few, after trying it fairly side by side with the T super, may conclude they prefer the section-holder, but I think the great majority will prefer the T. It is true, that the section-holder just fits the Dovetailed hive, and presents a very pretty appearance; but it is also true, that the T super just fits the 4¼ section; and because the L. frame is best to use, and the 4¼ section, I would use the best thing to hold each of them, and adapt the two to each other as best I could.

The objection to the T super is, that it is shorter than the Dovetailed hive, and, when placed upon it, leaves a small space either at the front or back. But, following the lead of Adam Grimm, many think it very important to have just that space at the back end, so that the bees may easily keep the brood-nest cool in hot days. If wanted closed, it is very easy to do so by placing a little stick over the opening, as I have done for years when I wanted it closed. I do think it is paying a very high price for the matter of looks to use the section-holder in place of the T super. Possibly it is because I am used to it; but the inequality in the lengths of hive and super does not offend my eye.

Perhaps I may give some of the objections to the section-holder. The sections rest on a bottom strip which is light, and will pretty surely sag more or less. The bottoms of the sections will not generally correspond with the bottom-bar of the holder, and, as a consequence, bee-glue will be plentiful in the angles; and you may be sure that, wherever the sections do not fit down snug upon the bottom-bar, the bees will thrust bee-glue between. The holders make more weight to handle, and tin separators must be used. If it has a single advantage over the T super, I do not know it, with the single exception of its being the same length as the Dovetailed hive. I confess I don't like the idea of a section-holder and T super combined. I want the T super in its best form, and certainly that is not by making it an inch too long.

And now I have done what I wanted—given some general hints, and especially warned beginners against adopting the section-holder without first giving it and the T super a fair trial. From the number who have used the T super—which is not always, but pretty often, a safe guide—you may judge something. Friend Root tells me that, for the Simplicity, of late, the T supers have outsold the wide frames three to one, and the section-holder is a modified wide frame without any top-bar—in my opinion, no better for being without the top-bar. The immense sale of Dovetailed hives makes me anxious that no one shall think that, just because the section-holder exactly fits the hive, he *must* use it in preference to something better. If you are very anxious to have the super the same length as the hive, then order the T super with one end filled in; then, if you wish, you can take out the filling and use it as a section-holder; and by putting one on top of another you can use the pair as a hive-body to hold brood-frames. C. C. MILLER.

Marengo, Ill., Feb. 22.

I will explain to our readers, that, after the Ohio Convention adjourned, Dr. Miller, and Dr. Mason, of Toledo, were both invited to come down to our place and give their opinion in regard to a good many unsettled problems in bee culture coming before us during the opening of the season of 1890. These two veterans met and conferred with the wise heads of our establishment; and I tell you it made quite a pleasant little convention. We had a session of two or three days, and the result of it was some marked improvements in many of our implements. The aim was to reduce expenses, and to confine ourselves, so far as possible, to the regular goods already in use. The Dovetailed hive, at the present time, is certainly more simple than the Simplicity, and justly deserves, I believe, being called the *Simplicity* hive at the present date. We are now shipping them by the carload, and our whole establishment is hardly equal to the demand. Very likely, five times as many are sold as of the old Simplicity, and perhaps the Simplicity had better be laid aside, although I confess there are some features about it that I dislike to see dropped. Making the bottom-board and cover one and the same thing can not well be managed with

the Dovetailed hive, or, at least, I myself do not think it advisable to try to do it; and I agree with Dr. Miller, that the T super as he uses it is perhaps the simplest surplus arrangement for the one-pound section that has ever been brought out—that is, it is more likely to please the masses.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

RIPENING HONEY IN HOUSES, ETC.

When honey is stored in houses built for that purpose, is the temperature allowed to go down to the freezing-point and below? GLEANINGS once told us that extracted honey should stand 24 hours before being sealed up. The plan works well. But when I wish to melt candied honey I should like to seal it while hot. How can I do this and not have it ooze out? It is quite sure to find its way out of the Mason cans unless it stands the 24 hours.

Tell us about the strawberries. The Jersey Queen produces many strong plants. The Jessie is slow about sending out runners. LIBBIE WILLIAMS.

Delavan, Wis., Feb. 13, 1890.

Comb honey should not be allowed to get below freezing. If it does, however, usually no great amount of harm is done. Sometimes the combs are cracked by a severe freeze; and sometimes, if a damp spell follows, dew collects over the cold surface of the capped honey. This may work through the capping so as to dilute the honey; and if a warm spell follows, this sweetened water will sour enough to give the honey a bad flavor. Keeping comb honey at an even temperature remedies most of this. What GLEANINGS said about letting extracted honey stand had no reference to the prevention of candying. If you want to prevent candying you must heat it to about 130 degrees, and then seal it up like fruit, while hot. Put up in this manner it will seldom candy, no matter how cold it gets, and, of course, there will be no oozing if the sealing is perfect. We have not had any trouble with the Mason fruit-cans when put up exactly as we can fruit.—My good friend, have you said just what you intended to say about the strawberries? With us the Jersey Queen is the slow grower, and the Jessie is the one that produces so many and such excellent strong plants. In fact, we have decided to drop the Jersey Queen when we can get a better-growing plant that produces as large a berry. It is possible, however, that your locality and soil make this difference.

THICK BARS A SUCCESS; THE THEORY THAT BEES WITH THEM WILL NOT ENTER THE SECTIONS AS READILY, A FALLACY; NO USE FOR HONEY-BOARDS.

The use of thick top-bars has been a success with me. They have come to stay. I have them in all my yards, and will have no frame made now unless it has a thick top-bar. Five years ago I changed all my bees to a frame whose top-bar was 14⅞ inches long, ⅞ wide, ⅞ thick, and 10 inches deep. I put 11 of these frames into a hive 16 inches wide, and I haven't been bothered with brace-combs and running their cells all over the tops of the frames as they do when the top-bars are but ⅜ of an inch thick. I have had the queen go up into the sections but once that I remember, and that time she laid in a lot of drone-cells, and the hive was contracted to only 8 frames, so I have no use for honey-boards; and by experiment I have had them carry their honey up over 10 or 12 inches of sealed honey to put it into the sections, and I couldn't see but that they stored it in the sections just as fast as the other colonies just as strong in bees whose sections were but two or three inches from the brood. So I have no faith in a ⅞-inch top-bar putting the brood too far from the sections. C. M. HICKS.

Fairview, Md., Feb. 10.

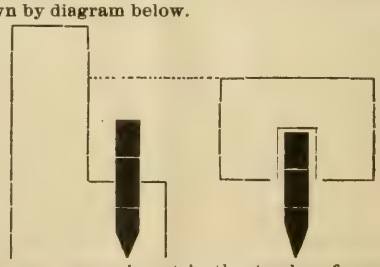
THE BEE-ESCAPE FOR EXTRACTING; FURTHER PARTICULARS.

I should have said (see page 100), that a case of empty combs should be put under the full one before it is finished, or else at the time of putting on the escape; then, even if the bees are bringing in five or ten pounds per day, there is no loss whatever—not even as much as when smoke is used, and they are shaken from the combs, and are upset and confused for the rest of the day. I love the little bees, and am glad to use any plan that will do the work with so little smoke, for I think they deserve better treatment than they get from some smokers. H. P. LANGDON.

East Constable, N. Y., Feb. 12, 1890.

FRAMES AT FIXED DISTANCES.

Mr. Root:—You ask for suggestions for a plan to space frames at fixed distances. How will this do? Drive the points of 4-penny wire nails into the rabbet, just the distance apart that you want your frames spaced from center to center. Then cut a slot in the end of the top-bar so as to hang as shown by diagram below.



Where a groove is cut in the top-bar for comb-guides or starters there will be nothing to do but to drive in the nails, hang in the frames, and they will be fixed as substantially, I think, as will likely be needed under any thing like ordinary circumstances. This plan is suggested for all-wood frames only. The points I would claim for this spacer are, that it is out of sight, out of the way, and, by having nails of just the right kind, it would cost almost nothing. E. R. JEFFRESS.

Martin, Tenn., Feb. 11, 1890.

Friend J., your suggestion is very ingenious indeed, especially the idea of taking advantage of the groove on the under side of the top-bar—that is, where that kind of top-bar is used, though with the ordinary kind a machine could be made to cut a groove very rapidly in the under side of the projection. This groove allows the frame end to shake, but holds it only at a fixed point of distance from its neighbors. For fifteen or twenty years past we have so many times

(that is, a great part of the bee-keepers of the United States) decided that we could not tolerate frames at fixed distances, it seems a little singular that we should be coming gradually toward it at this late date. The point seems to be, that, if we can get rid of burr-combs, we must have frames at fixed distances. Now, the question is, Which is the greater evil—burr-combs or fixed distances? Of course, it is quite important that these headless nails be driven exactly where they are wanted. In order to do this, I would have a metal spacer with holes 1⅜, or whatever distance is decided on, from center to center. Drive the nails through these holes down flush with the surface of the metal gauge; slip off your gauge, and they are not only exactly spaced, but they reach up exactly far enough and no further. My advice would be, to try a hive or two, however, before you fix many in this way.

WILSON'S $5.00 BONE-MILL, ONCE MORE; A SUGGESTION FOR DYSPEPTICS.

Five years ago I bought one for crushing bone and shell for poultry, for which they are especially recommended. When it came, however, and seeing on the directions that also good graham flour can be made with them (we being great lovers of this delicious nerve and bone strengthening article of diet) we at once gave it a trial, and we are happy to say we found this claim fully authenticated. Finding it rather slow work, however, I procured the gearing of an old fanning-mill, attached it to the mill, and fixed it all on a suitable frame, by means of which gearing I gained nearly five revolutions of the mill to that of one of the hand, thus giving it a high speed.

This mill we have been using ever since for making our graham flour, and it makes an article of its kind equal to any in the market. Whenever we desire a feast of fresh graham gems, or a delicious dish of graham porridge, we simply grind a sufficient quantity of wheat needed for the time, which is generally done by the children. This not only gives us the chance of using only the most select wheat, but also the advantage of having always freshly ground flour, which is a very essential point in good graham flour and sweet graham gems, as this flour, unlike that of the white flour, loses its good sweet flavor by age, the same as corn meal does; and, aside from all this, our flour costs us not over half of what it is sold at in the market.

I do believe—yea, I know it—that if the many dyspeptics of our land would resort to this kind of diet, *and do their own grinding also*, considerable less complaining of this *kind* would be the result, and much better health enjoyed.

We always dry our sweet corn instead of canning it, and then before cooking it in milk we run it through the above-named mill and crack it, which greatly improves it. Please try it.

Elkhart, Ind., Feb. 10, 1890. M. D. WENGER.

THE IGNOTUM TOMATO IN FLORIDA.

Friend Root:—If you remember, last fall I got ½ lb. of Ignotum tomato seed of you; and I want to tell you how I like them. I have raised tomatoes in the South for the last 13 years, and, notwithstanding a six-months' drouth, they certainly are the greatest yielders, and the largest and finest, I ever saw South. My patch has advertised the Ignotum far and wide, and are the surprise of all who see them. I am now shipping to New York. I find only one fault with them. While the seed was comparatively pure, it was mixed with a small, very prolific red variety, and a large, round, smooth, bright yellow variety. It is also prolific. I think it will be an easy matter to get them pure, for a genuine Ignotum can be told by an intelligent grower before they bloom. It has very large leaves, and long leaf-stalks; is very heavy, stocky in growth, and has, when growing rapidly, a peculiar yellowish color in the center of the leaf-blades. Now try, friend Root, and have your next crop true, and I predict a great sale for the seed. G. W. IDNER.

Tillman, Fla., Jan. 22.

Many thanks, friend I. Our Ignotum tomato seed is all saved from choice specimens; but we have never made any selection in regard to the plants. We thank you for the suggestion, and will act on it this coming season. We had already noticed that the Ignotum has a different look from other tomatoes, but had not followed it out as you have. As several have reported a yellow Ignotum, it is doubtless a sport; but I am inclined to think the small prolific red variety must have got in by mistake in saving the seed, for we had such tomatoes in the same field with the Ignotum. Your suggestion reminds us that we had better have our Ignotums in a field by themselves, and then make our selection of the plants from which to save seed. I shall be glad to know how the Ignotum bears shipping to New York.

A SABBATH-DAY QUESTION.

Do you consider it worse to sell honey on the Sabbath to your neighbors than to turn them away empty, providing, of course, they come and ask for it? What would you do in the case?

Oakley, Ill., Jan. 13. FRANK BAKER.

Friend B., we have had exactly the same state of affairs here. If the honey were wanted for a case of sickness, hoarseness, or cold, or because it was recommended by the doctor, we would sell it on Sunday; otherwise I would ask my neighbor or customer to please excuse me, and I would do it in the pleasantest way I could. I would tell him the honey should be sent him early Monday morning, and that he could pay me the first time it was convenient, rather than take the pay on Sunday. If I never got my pay at all, I should feel much better than if I received it on Sunday. There might, however, be extenuating circumstances. If the simple act of handing over some money on Sunday would save somebody from making a trip on purpose, of course I would receive it. Some years ago a camp-meeting was held but a short distance from our place of business. Several came over from the meeting, and wanted to know if we would open our lunch-room and sell them some crackers and cheese. I considered the matter for a few minutes, and took a look at the applicants, but finally told them that I preferred not to open our place of business on Sunday. Had they been people who looked like worshipers, I would have freely given them the crackers and cheese, without pay; but my decision was, that they were a lot of ungodly young men, even

if they did come from a camp-meeting. The trouble is, these things are apt to start a precedent, and I should very much prefer to have it reported that we had declined selling honey on Sunday, rather than the other way. I think that, if it were a near neighbor, with whom we were on very familiar terms, I would give him the honey, and tell him that he could settle for it the next day; but I don't think I should hunt up the scales to weigh it. Better make him a present of a couple of pounds of honey—far better—rather than in any way let down your custom of remembering the Sabbath day.

WIDE TOP-BARS; BEES GO INTO THE SUPERS JUST AS READILY WITH THE THICK BARS.

Seeing there is somewhat of a discussion going on about wide top-bars and thick top-bars to prevent burr-combs, I thought I would give you my experience of the last three years. As I never used any top-bars ⅜ thick, I shall have nothing to say on that score. The top-bars to my hives are one inch wide and ½ inch thick, spaced 1⅜ inches from center to center. With young swarms there are no burr-combs. With old colonies there are plenty of them, and the queen would go into the super if not prevented. Three years ago I took friend Alley's advice and made my top-bars $1\frac{1}{16}$ wide and $\frac{13}{16}$ thick, spaced just the same as above. I have no burr-combs from young or old colonies, nor does the queen go into the super. I can take off an extra super on a section super (where there is no honey-board), and the frames are all clean and nice—no burr-combs to stick them down. The bee-space over my top-bars is $\frac{5}{16}$ inch. I shall vote for wide and thick top-bars every time. I shall continue to use queen-excluding honey-boards for extracted honey. I do not have any trouble from the bees entering the supers over the thick top-bars, and I do not see but that they go up just as quickly over the $\frac{13}{16}$ top-bar as they did over the half-inch-thick top-bar. There is one thing, however, that compensates us for our trouble; that is, we have no sagging frames in our brood-nest. The combs are true, and straight as a board. A. A. BYARD.

West Chesterfield, N. H., Feb. 8.

Your last point, that bees go into the supers just as readily with the thick bars as with the thin ones, is valuable. Some of the friends (who probably had not tested the matter) thought it would make a difference.

THICK BARS; QUEENS NOT ALWAYS GOING ABOVE THEM.

Ernest asks, on page 20, "Are there not some who have tried extra-thick top-bars of extra width?" etc. To this allow me to say: Fifteen years ago I adopted a frame made of material one inch wide, top-bars being ¾ and some ⅞ inch thick; and ever since, I have had in constant use about 150 hives with such bars. As far as preventing burr-combs on top of frames is concerned—supers always properly adjusted—they have not proven satisfactory. It was not until 1885 and 1886, when I was in business in Virginia, each year handling about 200 colonies in L. and similar hives, having ⅜ x ⅞ top-bars, that I began to notice the *greater* amount of burr-combs on top of the frames in these hives. Mr. H. W. Bass, in Front Royal, Va., I think, will remember the discussions we had there on this subject at that time. However, I attributed the smaller amount of brace-comb to the greater width rather more than to the greater thickness of the top-bars; and I hold to that opinion to-day. My conclusion seems to be upheld by observations made on a number of reversible-frame hives, having top-bars of ⅜-inch thickness, and also on a number of other hives, which had the brood-combs crowded closer together. My bees in the first-named hives did not show any more of a desire to build burr-combs than in the hives having heavier bars. In the last-named hives the amount of brace-comb decreased in the same ratio as the space between the top-bars decreased. Summing up, I believe we can put it down as a rule, that "the less space between top-bars, the less burr-comb on top of frames;" but whether or not we can entirely dispense with Heddon's slatted honey-board, further experiments must settle.

Somewhat contradictory to Mr. C. G. Looft's experience, I find that my queens will occasionally enter the supers, notwithstanding nearly all my hives have top-bars one inch wide by ¾ x ⅞ inch thick. This, however, I do not consider any great damage, for a few sections with drone brood have a wonderful influence in starting a *lazy* colony in the section-super, and I am glad whenever I find a few such. F. GREINER.

Naples, N. Y., Feb. 1.

In the first instances, if your top-bars had been spaced $\frac{5}{16}$ of an inch apart, I feel quite sure you would have had no burr-combs. *Thickness*, as well as close spacing, is important. We tried, last summer, *wide* top-bars spaced ⅝ inch apart, but only ⅝ inch thick, and we had *some* burr-comb, but much less than on the other hives. Your point, that a little brood in the sections acts as an incentive for entering the same, is good. E. R.

COVER-BOARDS TO PREVENT WARPING.

I am much interested in the various ideas, notions, and devices brought forward by your correspondents; and I would suggest, for Dr. Miller's benefit, a cover with the ends of the board grooved out, and a good hard-wood cleat, with tongue, same thickness as the board. No doubt this has been thought of, and rejected for good reasons. WM. H. ALLEN.

Monroe, Mass., Feb. 8.

Your cleat would be good; but a groove wide enough to take in the whole end of the board would be better.

DO BEES WORK ALL NIGHT?

Do bees work at night? Do they carry on comb-building, feeding brood, laying, etc.? I can find no reference to it except in the Dzierzon Theory, and in cases where they are fed just at night.

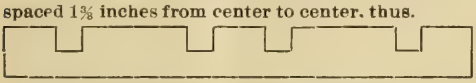
A B C SCHOLAR.

Bees work all night whenever there is work to be done; and there is always more or less to be done during almost every month in the year. Brood is fed all night as much as in the day time. Cells are prepared for the queen to lay in, and the queen goes on with egg-laying just the same. During the honey season, more comb is built during the night than at any other time, and both pollen and honey are taken from the cells where the workers deposit it during the day, leave it where wanted, prop-

erly packed away and sealed over. Don't go to the books for things like this, but go to your hives and examine them by lamp-light.

METAL-CORNERED FRAMES AT FIXED DISTANCES; ANOTHER IDEA.

On page 99 you ask for suggestions in regard to spacing brood-frames; and after reading friend Phelps' article carefully I have decided to suggest an old idea of mine—one that I thought of almost a year ago, yet I did not use it, as I thought it would be hard to make. For example, take a metal-cornered frame and a piece of heavy tin or zinc. Cut the zinc ⅞ inch wide, and long enough to reach from one side of your hive to the other, on the inside (of course we shall need a strip of zinc at each end of the hive). Now cut notches in one edge of the zinc, 1/16 inch wide, and ⅛ inch deep. Cut the first one ½ inch from the end of the zinc strip, and the next ⅞ inch from the first, and the next ½ inch from the second, and so on. Now place the arms of the metal corner in these notches, and the frames will not only be perfectly movable, but they will be spaced 1⅜ inches from center to center, thus.



VAN HOUTEN'S NOTCHED RABBET.

I believe that those who are rushing after thick top-bars just now will soon have thick top-bars and honey-boards too.

I have been convinced thoroughly, by practical experience, during this winter, that it will not do to shut bees in their hives while in the cellar. I tried confining them, and find it a good way to produce dysentery in a very short time.

Smithfield, Ill., Feb. 3. C. W. VANHOUTEN.

I have thought of this same thing. The rabbets could be notched with a die; but the trouble I fear is, that the metal corners would hop out of the notches over a rough road, in moving.

AN EXTRACTOR RUN BY A STEAM-ENGINE.

I have thought that I should have to buy me an extractor this season; but from what Bro. Osburn says, I am afraid to buy, for I can't stand it to buy a steam outfit this year. I should like to know how many colonies of bees he has. He must have a "right smart heap" of them.

How often should we change queens?

Hammond, Wis., Feb. 6. A. E. BRADFORD.

Don't be troubled about Osborn's extractor run by a steam-engine. He has charge of some seven or eight hundred colonies; but it will be a good while before he gets the steam 24-frame extractor to going. —A. E. Manum and Captain Hetherington change queens as often as two years. The majority of honey-producers do not. The two bee-keepers mentioned are two of the most extensive bee-keepers in the country, however.

BEES AND POULTRY.

Eight years ago, when I was about 16 years of age, I started up with a few colonies of bees. I always made bees pay fairly well, but hardly as well for the money I had invested as I could poultry. One year ago a friend who keeps poultry for the money there is in it helped me to construct an incubator. I knew nothing about running one, but I followed directions; and the first time, out of 200 fertile eggs I got 168 chickens and raised 140 of them. ED. W. COLE.

Kenton, O., Feb. 5, 1890.

SHIPPING BEES BY FREIGHT, WITH HOUSEHOLD GOODS.

I have 40 swarms of bees, which I wish to ship about 200 miles. Shall I hire a car to put them in, together with some of my household furniture? Now, how would you fix them for shipping? Can they be stacked up without being in danger of falling?

Is Missouri a good honey State? Which part is the best?

Do you know any thing of Macon or Adair Counties as honey-producers? W. H. HEATH.

Strawberry Point, Iowa, Feb. 6.

Bees can be shipped with household goods, provided you put them on the car and take them off yourself. They must be stacked up in such a way that the bumping of the car will not endanger tumbling them down. If the frames are not wired they should be parallel to the track; and in either case they should be fastened.—The State of Missouri gives us some fair honey reports —not greater, however, than other States, on an average. We can not tell you which part is best, nor any thing about the counties mentioned. Better write to the postmasters and ask for the address of those keeping bees.

STAPLE-SPACERS AN OLD IDEA.

Staples for spacing frames have been in use by Mr. Benegar, of this place, since I came here, six years ago. How long he used them before that, I don't know. He makes his own hives and frames (an odd size), and calls them Benegar's patent hive, the patent being on the staples! I don't think he has ever taken out his patent. Bees are swarming.

Sara Sota, Fla., Feb. 5. S. C. CORWIN.

Thanks for the information. Whether patented or not they will be objectionable for uncapping with a keen uncapping-knife, and we have abandoned the idea. Staples in the rabbets would be better, and free from this objection.

SEALING HONEY TO PREVENT CANDYING, ETC.

J. A. Buchanan says jars or cans for extracted honey must be strictly air-tight. In the fall of 1888 I heated some honey in the way we can fruit. I put cold water in a boiler, and put Mason jars of honey in the boiler. We have one jar yet. It was not sealed air-tight. We used to open it and look at it. The one jar that we have yet is so clear that my name can be read on the label by holding it to the window, and it shows no disposition to candy. I have heated some thirty jars this last fall, of unripe honey, as the honey wanted to boil over on the shelves, etc., and since then the honey seems to be all right, but thin; but it won't candy, and yet we had it in freezing weather.

Will some one tell me how to use honey vinegar? I rinse the honey-vessels, when empty, with hot water. In that way I get plenty of nice strong vinegar. But if I use it for pickles, or such things, I think it doesn't taste well. MRS. S. S. KRATZ.

Hatfield, Pa., Feb. 18.

My good friend, it is hard accounting for all these strange things. If you had one jar that did not candy, I should say it was

an exception to the rule; but when you say you have *thirty* jars of unripe honey that will not candy, even though unsealed, since you scalded the honey to make it thicker, I can not even suggest an explanation. As a usual thing, sealing up certainly helps to prevent candying, although honey sometimes does not candy, even though left unsealed. If, however, it once gets started to candying it will candy very rapidly.—In regard to honey vinegar for pickles, Dr. A. B. Mason, who is now at my elbow, says they never have any difficulty at all in making nice pickles of honey vinegar; and all his neighbors get their vinegar from him just because it makes better pickles.

BEE-FEVER AND THE A B C; ITALIANS AHEAD.

About six years ago my husband took the bee-fever. He concluded he must have some bee-literature and go at bee-keeping right; so for the first dose he took the A B C of Bee Culture. That digested, he wanted bees. He made some frame hives, and transferred our four "stands" into frame hives. Having success in this he sent to Dan White for a few nuclei of Italian bees; worked them up to full colonies, as per bee-books (having in the mean time procured Cook's Manual and GLEANINGS), and got 75 lbs. of honey in 1-lb. sections from each, and that year was a poor honey season; but we saw at a glance that Italians worked when our blacks "didn't turn a wheel." We lost all our bees last winter except four colonies. Two or three died with honey in the hives. Last spring we increased to 12, and had 350 lbs. of surplus honey in 1-lb. sections. We like GLEANINGS very much. A. E. Manum's talks are very instructive, also G. M. Doolittle's and others'. JESSIE G. DICKERSON.

Nioga, O., Feb. 10.

BEES MAKING A RAID ON THE PICKERS IN A STRAWBERRY-PATCH.

'Tis a real pleasure to see bees coming and going on their errands all day long. Besides, we are once in a while treated to a "circus" gratis, as was the case in 1887. I had 23 strawberry-pickers who were much interested in seeing a swarm of vicious hybrids on the war-path. To make a long story short, the bees cleaned out the ranch, and the whole population in the vicinity were compelled to "hunt their holes" without the dignity or ceremony of leave-taking. The recollection of the scene is still green in my memory; and it is too ludicrous to be easily forgotten. E. D. COX.

Marquette, Mich., Feb. 8.

Friend C., if your bees should prove to be an annoyance and a nuisance to people in your neighborhood, I am afraid the memory would follow me in another way than on the ludicrous side. I would look out that this does not happen very often, or there may be talk among your people about banishing bees and bee-keepers, that we have heard about in connection with the Bee-keepers' Union.

AT WHAT TEMPERATURE BEES MAY FLY.

At twelve to-day it was clear, with a cold breeze from the west. It had been cloudy nearly all the forenoon. On going to my bee-yard I found all my bees flying furiously except three swarms. I have a thermometer hanging on the east side of a small round post, twenty feet south of my house. The sun shone on it. It stood at just 40°, and got no higher that day. They flew till after three, when it stood at 36°—4° above freezing. It froze in the shade all day. My yard slopes to the northwest, so the wind struck it fair. My thermometer is a good cheap metal one. It hangs 10 feet from the first hive. So you see you can't tell at what degree they will fly. My bees are nice Italians, from Root's and Doolittle's queens, in chaff and Simplicity hives, shaded with grapevines. Strange, but the bees in chaff hives commence flying first this winter; usually the opposite of this has been true.

Harpersfield, O., Jan. 28. DANIEL BISHOP.

Friend B., you can not tell what the temperature is when the sun is shining. No doubt it was 40° in the shade; but had your thermometer been directly in the sun, it would have indicated 60 or 70°, I feel pretty sure. If you want to test the matter fairly, choose a still cloudy day.

REPORTS ENCOURAGING.

25 CENTS PER POUND FOR 4000 POUNDS OF HONEY.

I sold all my honey at retail in the Norristown market, at 25 cents per pound, just as it came off the hives, all in combs, one and two pound boxes, and about 200 pounds in five-pound boxes. I got about 4000 pounds of honey. J. W. SWARTLEY.

Norristown, Pa., Feb. 7.

NEW HONEY.

To-day I replaced my best hive on the scales, from which it was removed on the 4th of December. It then weighed 76½ lbs. The present weight is 80 lbs. Some other hives would have made a better record still, if they had been weighed. The season is very forward. Dewberries are as large as a shirt-button, but not ripe yet. H. FITZ HART.

Avery, La., Feb. 4, 1890.

NO WINTER IN NORTHERN ARKANSAS.

Thus far we have had no winter. Bees have been gathering pollen since Dec. 15. They have brood in all stages, and are in good condition; but I suspect springing them will be where the trouble will come. GLEANINGS and the *American Bee Journal* come regularly, and are prized highly by all who can afford to take the two. R. H. GUTHRIE.

Powhatan, Ark., Feb. 10.

3500 LBS. OF HONEY FROM 33 COLONIES; CHUNK HONEY.

We started last spring with 33 colonies, and increased to 68. We took 3500 lbs. of honey, both extracted and comb, all put up in jars and pails. I believe you call it chunk honey. It was nearly all sold before cool weather, at 10 cents a pound. I don't use any sections. I think I can manage better against swarming with brood-frames when they raise brood in the upper story. I take it out and put it into a nucleus, and they get discouraged after two or three times taking out. The most of our colonies swarmed only once, and soon did not swarm at all. A. R. DIOKE.

Hettick, Ill., Feb. 4.

Friend D., you say you got 10 cents a pound for your chunk honey, and also that you do not use sections. Now, I think you are making a mistake. Had your honey been put into nice sections, and put on the market in your neat cases, it would have

brought 15 or 18 cents. In fact, we paid 15 cents at wholesale during the past season for nice honey in sections. Honey that is broken out, or that can not be used otherwise, we get rid of in the way you mention, at from 10 to 12 cents a pound.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

JAPANESE AHEAD FOR GRAIN AND HONEY.

Japanese has yielded splendidly with us this season, and for honey it is just as good if not better than the silverhull or brown. It averaged over 52 bushels to the acre. A. A. GENTER.

Springfield Center, N. Y., Feb. 1.

INDICATION OF AGE IN QUEENS.

How can you tell the age of your queens?

St. Anthony, Ia., Jan. 30. W. R. HASLET.

[The experienced bee-keeper will tell an old queen by her looks pretty accurately. The difference, while not quite as apparent as in the human family, is plainly to be seen in much the same way. An old queen gets small in size, more or less doubled up, and in her movements seems to be decrepit and feeble. Her wings, the luster of the covering of her body, her feet and limbs, all exhibit indications of age. Some bee-keepers indicate the age of a queen by the manner of clipping the wings.]

UNIFORM TEMPERATURE IN CELLAR.

Thermometer outside, 50° above zero, eight o'clock this morning. It has been thawing, and is misty and muddy. Thermometer in my bee-cellar registers 48 above zero. I have not watched it this winter; but from the cellar this side of it, it probably has not varied more than two or three degrees one way or the other. V. W. KEENEY.

Shirland, Ill., Feb. 4, 1890.

THE NORTH VS. THE SOUTH FOR HONEY.

Please let me know if bee culture succeeds as well in the South as in the North, especially East Tennessee, Northern Alabama, or Western Carolinas. W. D. TABLER.

Trilla, Ill., Feb. 10.

[Bee culture can be carried on as successfully, and perhaps more so, in the South, because there are no serious winter troubles to contend with; but the honey of the North, as a general rule, is of a finer quality, and, of course, commands a higher price.]

WHICH WAY SHALL THE ENTRANCES FACE?

Does it make any difference whether hives are faced south or west? I have mine faced west.

Hegins, Pa., Feb. 8. J. H. DUNKELBERGER.

[It does not make any real difference. We have our hives facing all points of the compass. We prefer, usually, to have the entrance face the east, so that the bees may have the benefit of the morning sun, providing that bees may be able to identify their homes without confusion. See Introduction to A B C.]

THOUSANDS OF ACRES OF HONEY-BEARING ALFALFA.

Bees are taking a boom here now. We have alfalfa here by the thousands of acres — that is, there are several places in three counties here where the bees could reach a thousand acres in a two-mile flight, and on one of these big farms the honey-flow lasts from June till September, almost the same one day as another; and the older the plant gets, the more honey it seems to yield, and the quality improves too. C. E. BARBER.

Langford, Col., Feb. 4, 1890.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 155.—*In your opinion, is a single-walled hive made of three-inch stuff, dovetailed at the corners, practicable when the cover and bottom-board are made of one-inch lumber? If not, what would be the objections?*

Yes.

Michigan. C. A. J. COOK.

I should say it would be a bungling affair.

Ohio. N. W. H. R. BOARDMAN.

I never used any thing thicker than ⅞, hence I can't say.

Louisiana. E. C. P. L. VIALLON.

I don't know. I never had such a hive, neither do I want one.

Vermont. N. W. A. E. MANUM.

We prefer a ⅞-inch wall all around, as we can protect it in winter without having any incumbrance in summer.

Illinois. N. W. DADANT & SON.

Yes, and it is "practicable" to plow with a stick; but what is the use, when there is a better way?

Ohio. N. W. A. B. MASON.

Yes. I should prefer it to half-inch for this climate. Why not have the bottom and top as thick? and wouldn't a straw hive be lighter and better?

New York. C. P. H. ELWOOD.

I think such a hive would be undesirable; ⅞ lumber is as thick as is required. Such hives would be too heavy. I regard it very essential that hives be as light and easy to handle as possible.

Connecticut. S. W. L. C. ROOT.

Such a hive would be heavy and clumsy, and no better than one of inch lumber, to exclude cold; that is, with an open entrance and a one-inch bottom.

Illinois. MRS. L. HARRISON.

I don't think a hive made of three-inch lumber would be enough better to offset the great weight of the hive. I would rather use inch lumber and chaff stuffing.

Wisconsin. S. W. E. FRANCE.

I never saw hives made of such thick lumber. I should think they would be too heavy and cumbersome, and a useless waste of material, and no better than those made of inch lumber.

Wisconsin. S. W. S. I. FREEBORN.

In my opinion, no. Because size, weight, and cost of hive would be increased without corresponding benefits. Whatever advantages such a hive might possess can be secured easier and in a greater measure by the use of double-walled hives packed with suitable material.

Cuba. O. O. POPPLETON.

1. I should prefer it made of ⅞ lumber, with packing space of 3 inches between outer and inner case. 2. Too much lumber and too little protection.

New York. C. G. M. DOOLITTLE.

Why, yes, I suppose it is practicable, but I doubt if a three-inch wall would be any better than a one-inch. Still, it might be, but it would take no little experimenting to settle the matter.

Illinois. N. C. C. MILLER.

We should object to any style of hive being made of three-inch stuff, as the joints will be sure to open in time. I don't see that it makes much difference about the top and bottom board. Come to reconsider the question again, we don't see what the fellow is driving at, any way.

New York. E. RAMBLER.

I should object to such a hive at all seasons, on account of the increased expense, weight, and bulk. It would be but very little better, for wintering outdoors without outside protection, than a hive with sides of ⅞ stuff. I should not want to winter bees in such hives without additional protection; and that given, I can see no advantage whatever in their use.

Illinois. N. C. J. A. GREEN.

No, sir; you will be sorry if you ever make thick-walled hives. We tried that on quite an extensive scale. We have also tried double-walled hives, and don't want any of them. Make the sides ¾ inch, your ends ⅞ inch, and your covers and bottoms ⅝ inch; then your hive will be light, and it will not warp nor go to pieces as quick as your thicker material. Always have your packing-boxes dark-colored for winter, and your hives light-colored for summer.

Michigan. S. W. JAMES HEDDON.

If lumber is cheap, and you can afford so much of it, all right. Why not have the covers and bottoms of three-inch plank too? One feels better satisfied, after having "gone the whole hog," than when stopping half way. A chaff-packed wall of the same thickness is lighter and better, except the important matter of durability. The most common objection would be, "Too heavy to lug around." In my apiary practice, hives are carried around but little; and I think I could tolerate the plank hive.

Ohio. N. W. E. E. HASTY.

Why should the sides of a hive be made of three-inch stuff when the bottom is one inch? I can convince anybody that hives made of inch stuff will winter bees as well, if not better, in this latitude, than the best chaff hive made. Cause: A chaff hive is cellar-like, and its temperature is not much affected by the outside atmosphere all winter, while the mild rays of the sun in January, February, and March, have a most beneficent effect on the sides of a single-walled bee-hive.

Ohio. S. W. C. F. MUTH.

Ernest was greatly chagrined to discover, after the answers all came in, that the question reads "three-inch stuff" where it should have been "*three-eighths* stuff." In order to test single hives out of doors, we are now wintering several made only ⅜ inch. We have decided, however, to print the replies, inasmuch as plank hives have been many times suggested and several times put into actual use. They are a little better, so far as protection is concerned, than thin hives, but not enough to recommend them, and not nearly as good as a porous wall made of rather narrow strips of thin wood, with chaff or some similar porous material between. Our older readers will remember my experiments years ago with the hoop hive. This hive was made of thin narrow stuff so as to be something like a corn-crib. The slats were arranged, however, so as to shed rain. Bees wintered in them, and stored honey; but the sections near the outside wall could be worked in only when the weather was exceedingly warm. On this account, hives made of inch stuff gave better results.

MYSELF AND MY NEIGHBORS.

And the devil said unto him, If thou art the Son of God, command this stone that it be made bread. —LUKE 4 : 3.

WHILE in Salt Lake City, one young friend who keeps bees, learning I was in the place, telephoned all the hotels to find out my whereabouts. After he found me I proposed we should go around and gather up the bee-friends, so we could have a little visit all together. Of course, A. I. Root would have something to say to these friends before leaving, that was not directly connected with bee culture. I have told of my visit to friend Woodmansee's, who lived a little outside of the suburbs. Street-cars, however, ran within perhaps a quarter of a mile of his place. On our way home, at the terminus of the street-car line, while waiting until it should be time for the car to start, we were entertained by some boys who had gotten up a sort of amateur string-band. They had a violin, banjo, guitar, triangles, and cymbals. I am fond of music, and the performance of these boys out in the open air on that December night filled me with thanksgiving, and, I hope, with praise. I thanked the boys for their entertainment while we were waiting, and expressed my pleasure to the friends who were with me. The street-car conductor was one of our number. He was very affable and pleasant, but smiled with a look that seemed to me somewhat savoring of irony or sarcasm, as he gave us a little speech something like this:

"Boys," said he, "the music was very nice, and music is a good thing, especially when the performers are experts. But, my friends, let me tell you there is no music in this world so entrancing and so satisfying as the music of golden coins as they rattle in *your own* pocket." And then he patted the place where his pocket was, evidently pleased at his pleasantry. I ventured to demur a little, but he replied again:

"There is no getting around it, boys. You live until you are as old as I am, and go through the world and try all it has to offer, and you will decide with me, sooner or later, that the chink of gold throws every thing else into the shade."

At our recent Ohio Convention, a fine-looking man, and one I should judge of much ability, came up and shook hands; but it was evident from his manner that he

was not quite pleased with something. He said he had been a bee-keeper a good many years, and had taken GLEANINGS, and that he would like to say a little something to the members of the convention on the subject of bee-keeping before we adjourned. The opportunity was given him, and he spoke. Nineteen years before that time he attended one of the first bee-keepers' conventions, held in Cleveland. Father Quinby was present, Prof. Cook, myself, and quite a good number of others. R. C. Otis was there with an American hive. Friend Hosmer, of Minnesota, was also present, and told his wonderful stories, and bantered the convention to "put up money," if they dared, against what *he* could do during the ensuing season*. There was a good deal of excitement, and the friend in question went home crazy on bee culture. He had followed it more or less during the whole nineteen years. But his golden dreams had not been realized. He was rather embittered toward editors and others who *urged* people to go into bee culture with the hope of getting rich. He also had some pretty keen and scathing remarks that seemed to be directed toward supply-dealers; but perhaps he did not intend it so. There is much truth in the point he brought out, and our worthy president, friend Boardman, in his address, summed up at length a good many facts in the same line. A good many of us *have* been disappointed in bee-keeping. During these nineteen years, real facts have seemed to indicate that one must work for his money, and take his share of disaster and loss in apiculture as well as in all other industries. Before the convention closed, however, this friend came to me. During the convention I had replied briefly to his charges, and perhaps he felt a little more friendly toward us all; but notwithstanding, he was not quite ready to give up his position. During our discussions, one friend mentioned the delicious aroma, or perfume, from sweet clover where it grows to perfection along the roadsides. Others spoke of the perfume from the white and the red clovers, alfalfa, apple-blossoms, etc. Well, this friend came to me during the recess, and said:

"Friend Root, there is one perfume that none of you mentioned; and it surpasses that from any honey-plant that ever grew. It is the perfume of a one-dollar bill."

To prove this he pulled one from his pocket. It was a crisp new one; and as he waved it in his hand it rattled suggestively. Now, I am not certain whether he said that the said perfume was dearer to *me*, or whether he simply included all bee-men. But I think, that perhaps my face commenced to color just a little. But when he added, that, notwithstanding the faults and *failings* of GLEANINGS, he wished me to take the dollar to keep it going, I was ready to take him cordially by the hand and enjoy his joke, so characteristic of what he had been saying. Now, then, what do you think of the proposition of the street-car conductor and the one of the bee-keeper? Just as I was shaking hands, and taking leave of the friends in Salt Lake City, a fine-looking young fellow who had been with us that evening said to me, "Bro. Root, that street-car conductor hit my case exactly. The greatest trouble I have in this world is a lack of money. I have never had enough of it yet, and I can not get away from the idea that money is of more importance than any thing else that this world has to offer. I know what you think about these things, but I thought I should like to tell you just where my temptation lies, and where my trials and difficulties center."

The above may not have been exactly his words, but they express the sentiment as nearly as I can remember it. It was time for my train to start, if I remember correctly, so I did not have time to say very much with him about it. But I have often thought of it. My heart goes out in sympathy and love toward him. He was a nice-looking boy—young, bright, handsome, and good-natured looking; but there seemed to be a vein of sadness over his otherwise fair exterior, and I presume he said truthfully, when he told me where his trouble lay. May Christ Jesus be with him, be near him, and teach him that there are better things—oh! far, far better things—in this world than the "chink of gold in your own pocket," and that there are more beautiful perfumes to be found than those that come from the sight and rattle of crisp new dollar bills. Some of you may say that I do not know about these things. I am afraid that some of you think that dollar bills are so plentiful around me that I do not know what it is to be hard pressed for even one single dollar. Yes, I *do* know, dear friends. I have often been censured, and am still, for my economy. All of you know, where I have been among you, that I am by no means wasteful. I do not know but that some of my good friends who are well to do in this world are often a little pained to see me dressed so plainly. But I would far rather it would be so, than that any should be troubled because I dress so much better than they do. May God help me to remember those who are struggling with poverty and a scarcity of money. Perhaps some of you may wonder what connection our text has with the subject in question. The connection is this, dear friends: The Savior of the world, who had all things at his command, when he came among us to live a human life refused and at once rejected the idea of performing a miracle that he might supply himself with *needful food*. He gave bread to five thousand when they were destitute, and produced the food by a miracle; but during the whole record of his public life, full of miracles daily and perhaps hourly, no one is recorded where it was performed for *self*. He took his chances with the rest of humanity. Yes, more than that, he took his chances with that little band of followers. When they were hungry, thirsty, and fatigued, he was hungry, thirsty, and fatigued also. No one of them could ever say that he, because he was God, had food or drink or rest when they did not. In his anxiety

* I need hardly say, nobody ever heard from Hosmer afterward as a bee-keeper. His apiary became run down and neglected.

to do the will of the Father he often went hungry and weary. He went away into the wilderness to get seclusion and rest from his hard physical labor. But even there they followed him. He did not get impatient, nor did he turn them away. When weary in mind and body he still ministered unto them, and performed miracles when we know that it taxed his strength sorely, for he has told us so. Jesus was self-sacrificing. When we crave money in the way I have indicated, it is mostly a selfish craving. I do not suppose that the street-car conductor had in mind at all—in fact, I doubt if he ever *dreamed* of such a thing as using this gold that chinked in his pocket, for the relief of his fellow-men. I judged from his looks that a great part of it would go toward giving indulgence to a sensual, selfish, and wicked appetite. Oh what a difference! The thoughts of one were all selfish: the other, no self at all. Jesus possessed the whole earth, in one sense, and in another he had absolutely nothing. We do not know that he ever had a cent of money that he could call his own. The possessions of the little band were carried in a bag by Judas. While Jesus had at his command legions of angels, he passed through the world helpless and alone. His little band of followers were, of course, ready to do his bidding; but even they, when his enemies came, fled in dismay.

Another point: Does the one who feels that money is the supreme thing to labor for in this world succeed in getting the satisfaction he expects? I am pretty sure that, as a rule, he does not. Does he succeed in getting riches? Again I am sure he is, usually speaking, disappointed. That street-car conductor did not have much gold in his pocket to jingle; and from what experience I have had in business, I think it doubtful whether he ever does have. He will be disappointed in the enjoyment he expects, and he will be disappointed in getting money; and I hardly need intimate that he will utterly fail in getting that peace and happiness that *money* can not buy. The man who is constantly greedy for something to put into his *own* pocket, seldom becomes rich; and still more rarely does he succeed in becoming a valuable business man.

Now, friends, I need not tell you there is a large class of people in our land who seem to be embittered against those who have money. There has been a great conflict between labor and capital. I hope and trust and pray that a better spirit is coming. Like the false statements in regard to the adulteration of honey, I feel certain that there have been false statements and false charges against the capitalists. A certain class of farmers have been hard and uncharitable toward the men who handle their grain and pay them for it. I agree, that there has been great wrong. The gamblers in grain, I regard as the worst kind of gamblers in the world. I do not believe in a lordly aristocracy, as you well know; and yet I feel sure that many of us have been complaining of evil where none existed. Nearly all the papers seem to be bitter against trusts. They speak of the men who have them in charge as only a sort of legal highway robbers. This may be true in some cases, but I am sure that it is not in others. Last season I watched and read a good deal on what has been called the "twine trust." Now, I feel pretty certain that no such thing existed. Perhaps the men who had twine, who had been sharp enough to purchase largely, did contrive to make extraordinary profits. This happens in all kinds of business. But I do not believe there was a concerted action among the twine-sellers. Even supposing the price of certain kinds of articles does run up high; isn't there a good side as well as a bad side to it? I do not know who raises the raw material for the twine, and I do not know much about the people who manufacture it into twine; but this sudden demand and high price must certainly have benefited the producers. Just look here a minute at something closer still to our homes. A few days ago I found the boys had raised the price of onions from 20 cents to 40 cents a peck; and by way of explanation they said that onions had gone "away up." I looked at the quotations, and, sure enough, they were $3.50 a barrel. Said I:

"Why, what should make them run away up at this time of the year?"

"Oh! they say," said Mr. Weed, "that they have started a trust, or corner, on onions; that somebody is buying up all they can find at big prices, so as to get a corner on the market and make a big thing out of it."

Just think of it! Poor people are obliged to pay this awful price for onions, just because some wealthy speculator has bought them all up and won't let the people have any unless they come to his terms. If they are going to make a corner on onions, and charge such extortionate prices, what won't they get hold of next? That is one side. Now let us look at the other.

In another part of our town a neighbor raises garden-stuff as we do. One year ago he put 150 bushels of onions on his manure-heap, because no one would give him a cent for them. A few days ago he came and bought a lot of garden-seeds, looking quite happy and enthusiastic about gardening. He had sold all his onions at a big price, and had received money enough for them so he could buy his seeds and go on with his chosen industry, full of faith and thanksgiving. As he is a Christian man it was thanksgiving to God. But, dear friends, ought he not to be thankful for this *trust* (if there was one) that gave him such a lift in his business? Why, to be sure he should. Whenever any thing becomes scarce, so that the product is bought up at good prices, why, it helps people. And this state of affairs is going on every day. Our farming friends lament terribly when wheat goes down to 70 cents a bushel. They say that farming does not pay, and that the farmer is the slave of everybody else; and some of them say that all the world is holding the farmer's nose on the grindstone; and when he gets mad, and says he won't stand it, the great world just laughs and feels tickled about it. Suppose, however, it is butter that we are talking about, and that, instead

of going down, it goes *up*. Then the townspeople who are obliged to buy their butter and milk talk about the greediness of farmers, and of their want of conscience and scruple, and that they would just as soon "see a body starve" as not. Now, these speeches are all uncharitable—they are all wrong. They are not Christlike. They are not neighborly. And, oh how far, how very far, they are from the disposition shown in our little text! The Savior, who had been forty days without food, and was suffering from hunger, turned away from Satan and his suggestion at once. "Get thee hence," he said, a little afterward. "I am in the hands of the great Father. He has provided thus far, and I am going to wait on him now. If it is his will that I should bear hunger still longer, his will, not mine, be done. For this cause came I into the world, to suffer and to bear the burdens of humanity, whom I love."

Yesterday a friend wrote us, saying he had asked us repeatedly for a price list. The *last* time, he ordered a sample of our sections, and asked again for a price list. The sample of sections came promptly, but no price list. He thought the clerks were careless, and had neglected to send one. They did send it, however, in the same mail the section went in; but as he did not get it, he got provoked and sent his order to friend Falconer. I wrote back to him, saying that we were very sorry to lose his order on account of the price list; but inasmuch as what was our loss was friend F.'s *gain*, I did not feel so very bad about it after all; and just as it occurred to me to put it in this way I felt happy about it. It is true, we lost quite a number of dollars—may be twenty or thirty crisp new dollar bills; but I wish to say to the friend who talked about the perfume of the dollar bills, that I enjoyed the "perfume" of the thought that *friend Falconer* had the order, even if we didn't, more than that of *many* crisp dollar bills. And this reminds me that our boys have, during the few past months (almost without my knowing about it), been establishing friendly relations with supply-dealers all over the land, to a greater extent than has ever been done before. We have not had any sleighing here, and, in fact, we have had nothing but deep mud for several months, and therefore no basswood has been brought in. When they discovered that the supply of sections was going to run short, they wrote to nearly all the supply-dealers in the United States. In comparing notes we found that many of them were in much the same situation as we are. The boys suggested, therefore, that we agree on uniform prices, and not injure each other by cutting them down to a price that would not pay the cost of production, especially while the supply was going to be limited. Some rather objected to any agreement in regard to prices. Sooner or later, however, I believe all agreed. And now comes the pleasant part to me. If somebody in York State wants sections, he does not want to pay freight all the way from Medina. We hope to arrange with some one there to fill the order; the same way with friend Jenkins, in the South, with Nysewander in Iowa, and with some friend in Wisconsin. How about the quality of all these makes? Well, friends, we have had samples from almost all of them. Not only single samples, but samples of thousands. And it is pleasant to notice that each one seems to be doing a little better than he ever did before. In fact, we at the Home of the Honey-bees will be in danger of getting behind if we do not look out. Now, we want to do good work, friends—as good as anybody else does; but I am sure I tell the truth when I say that it does not make me feel bad one bit to have the bee-friends say they get their supplies from some other supply-dealer. The thought to me that there is now no rivalry or jealousy among us is worth a *thousand* times more than the rustle of dollar bills. Do you ask if I do not believe in the old adage, that competition is the life of business? Yes, I do believe it. But I want to see the competition a kind and friendly one. I want to see on both sides the spirit of "in honor preferring one another," instead of the old-fashioned way of saying, "*I* make the best sections in the world, and at prices lower than any other live man *dare* mention." I do not know whether any supply-dealer advertises like that nowadays or not. I trust not. Dear friends, the world is wide enough. There is plenty to do, and plenty of *money* for us if we are faithful and honest and true. Let us advertise our sections *with all our might* by giving every customer nice work at reasonable prices, by promptness and fairness in dealing. Instead of wasting our money in spread-eagle advertisements, such as I have given above, get up early and work late. Watch carefully, answer every letter promptly. Do not overlook a single request. Answer courteously and good-naturedly even questions that seem to be unnecessary. Above all, do *not* be greedy. If the spirit gets possession of your heart, of wanting to rise above your neighbors or competitors, put it away. Say, "Get thee hence, Satan." Do not envy the *rich*. Do not, I pray you, fall into the terrible fault of *worshiping* money. It is pleasant to have money in the pocket; but the pleasantest use I have ever made of money was to pay debts with it. I love to have some in my pocket, to buy things of farmers. In fact, I enjoy this so much that I am afraid I sometimes pay more than I ought to. The boys say that I encourage farmers in running after me, because I always give them more than their things are worth. Well, I am sure that this is a better way than not paying them enough. Shall we become impoverished by so doing? Surely not—that is, within the bounds of reason. No man becomes poor by being fair and honest. Much has been said of the value of a good name; but, dear friends, I am sure that the half has never been told. The aroma, or "perfume," or the "music" in one's ear (express it as you choose) of feeling that he has won the confidence of his fellow-men, and established a good name, is worth to me, oh! ever so much more than the sound of the chink of gold or the rustle of paper bills. A few days ago a lady who is a book

agent came to our place of business, and, not finding me, she went over to the house to see my wife. My friends told her that I would not buy the book; but she declared that she was going to get me to *look at it* and give it a recommendation. She said she could sell a great many copies if she could just get A. I. Root's name attached to a recommendation of the book. Now, friends, why should *my* name help sell the book? I think she said she had the names of the ministers, but several people would not invest unless I *also* would recommend it. Now, please do not think I am boasting. I am only pointing a moral. The reason why my opinion was wanted and valued was because I positively refuse to recommend things in that way.* There are only a few books and papers that we recommend in GLEANINGS. Why? Because I know how much you value my opinion; and I feel as if it were almost a sacred matter to tell you what to buy. This good brother who spoke about the perfume of the dollar bill said to me, "Mr. Root, you can not sell me any of your T supers or perforated zinc or bee-escapes, nor any of that sort of traps. There has been too much of this sort of business of advising us to buy this thing and that thing; and as soon as we have put in all our hard earnings, then we are told to throw away these traps we have just bought, and buy the next thing, which is a good deal better."

There is a moral here. While I think he put it too strongly, I am sure that we who publish journals should be careful. It is a serious matter to lumber our homes and our apiaries with things that may, after a little time, be discarded as useless for the purpose for which they were recommended. Let us strive to help our patrons and our neighbors, and not disgust them with something that was devised thoughtlessly or with too much haste. Our boys here are perhaps somewhat like other boys, fond of new things, and many times enthusiastic over something that has just made its appearance. I am trying, however, to induce them to go slow, and to be careful in what they recommend; and they agree with me in the spirit of the matter, for they too are striving to follow in the footsteps of Christ Jesus, who pleased not himself. And please remember the thought that comes so closely in line with that expressed in our text, when he was suffering his death-agonies on the cross; for at this time he was only a poor weak human being like ourselves—weak so far as physical suffering is concerned, for he suffered just as would you and I under such circumstances; and then those bitter wicked men, with their hearts full of hatred, said to him, between his groans of anguish, "Others he saved; himself he can not save." And, dear friends, in one sense it was true. He could *not* save himself and come down from the cross, as they challenged him to do, and be *consistent* with the life of self-sacrifice he started out to live, and finished so completely by his death on the cross. He died for others; and, dear friends, if you wish to get a glimpse of that happiness and peace, that enjoyment, that rapture, that is beyond the perfume of flowers, the charms of music, or any thing else that this world of ours can furnish, take up *your* cross and live for *others*, even as he did. Love money, if you choose; work hard to get it; but when it is yours, and in your pocket, instead of using it for the gratification of selfish appetites, learn to use it right, oh I beg of you, and beseech you! for the good of others. Make *others* happy, and you will find joy upon earth, and, when life is finished, heaven beyond.

*Book-agents often urge people to pay several dollars for a book when the money *ought* to be used for debts long unpaid, for the very clothes they wear.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
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MEDINA, MAR. 1, 1890.

Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal.—MATT. 6: 19.

MORE NAMES.

SINCE our last issue we have received the following additional names of those whose faces appear in the picture of the Brantford Convention:

15. Isaac Lundy; 47. Mr. Ballachery; 73. B. Jackson.

THE AMERICAN APICULTURIST.

THIS journal for 1890 celebrates the new year in a new style of cover and make-up. One special feature, and one that will be appreciated by its readers, is the department of Short Items, conducted by E. L. Pratt, M. A. Kelley, Dr. Tinker, and others. We congratulate friend Alley on the improvements.

"NOTHING PATENTED."

IN the last issue of the *Canadian Bee Journal* we find the following from "Observer:"

I read all the advertisements in the journals, and I have noticed that the words "nothing patented" are left out of the last ones inserted by our friend A. I. Root. Is this to be taken as evidence that A. I. is receding from the strong position he has always taken regarding patents?

No, dear friends, A. I. Root has not receded a single inch. In view, however, of the fact that some of the bee-friends have felt a little hurt because of my words, "nothing patented," I decided to leave it off, on the principle that, "if meat maketh my brother to offend, I will eat no meat," etc. We have no patent on any thing we manufacture, and probably never shall have. We are doing well enough as it is.

TWO BEE-PUBLICATIONS CONSOLIDATED.

THE *British Bee Journal*, a weekly, and the *Bee-Keepers' Record*, a monthly, celebrate the new year by consolidating with each other. The former is published as a 16-page weekly, the size of the pages

being about the same as those of GLEANINGS. It is printed on better paper than formerly, and altogether the change is an improvement. The *Bee-Keepers' Record* is a 16-page monthly, with a tinted cover. Both journals are edited by Thomas William Cowan and W. Broughton Carr. The former has more direct supervision of the weekly, and the latter of the monthly. The price of the *Bee-Keepers' Record* is 2 pence, and of the *British Bee Journal* one penny each, or respectively 50 cents and $1.00 per annum.

A NEW DEPARTURE IN THE CANADIAN BEE JOURNAL.

THE publishers of this periodical, on and after March 1, propose to divide the *Canadian Bee Journal and Poultry Weekly* into two separate publications; namely, the *Canadian Bee Journal*, and the *Canadian Poultry Journal*. The former will be issued on the 1st and 15th of each month, and the latter in the intervening weeks—on the 8th and 23d. The prices of the separate publications will be 75 cts. each per annum. This change is made to accommodate those who desire a distinctive bee-journal and a distinctive poultry-journal, and both will be published semi-monthly. On the whole, we think the change will be a good one, and we wish our Canadian brethren all manner of success.

THICK TOP-BARS.

WE have received such a lot of correspondence on the value of thick top-bars as a preventive of brace-combs that we are unable to make use of all of it. In fact, there are some very valuable communications on the subject that we shall be obliged to reject. We deem it best that the discussion come to an end for the present. Perhaps we should say, that, among the very large number of testimonials we have received—a majority of them unpublished for want of space—there has been scarcely one but that goes to prove most conclusively that thick top-bars are going to do away with many if not all of the troubles of brace-combs. We have had reports of top-bars only ⅞ inch square, but they accomplished the result only imperfectly. But where the top-bars have been fully ⅞ thick, 1 inch wide, and spaced about $\frac{5}{16}$ apart, there have been *no* brace-combs.

INGERSOLL AND TOBACCO.

I AM exceedingly surprised to notice by the New York *World* of Feb. 21, that Col. Ingersoll defends tobacco, and even delivered an address at the close of the Cigar Manufacturers' Convention at Delmonico's. In his address he used these words:

I use tobacco now, and defend its use against the moral advice of parsons and the physical advice of medical men.

We can readily understand how he may excuse himself on the ground that he differs in opinion with the clergy; but we can not understand how he can offer any excuse for rejecting or defying the almost unanimous decision of the medical fraternity. No better evidence of the low moral tone of the whole tobacco business can be produced, than that it employs Ingersoll to defend it. To a careful observer, however, his whole speech on the above occasion was one of the finest pieces of irony and sarcasm ever read.

MRS. COTTON'S CIRCULAR FOR 1890.

THIS is quite an improvement over any circular and price list that has been sent out by Mrs. Cotton in any former year. There are no criticisms of the bee-journals or writers on bee culture. In fact, she does not find fault with anybody, so far as I can see. The things she offers for sale are, however, *away above* the prices usually charged for bees, hives, feeders, instruction-books, etc. She still offers drawings and illustrations for making her hive, for $4.00. She insists on feeding largely whenever the bees are not gathering honey, in order to induce them to put all the honey they gather into surplus boxes as far as possible; and there is no caution, that I can see, against feeding bees sugar, and calling it honey. She also says the feed used in her system costs only about 4 cents a pound. This, of course, is possible, where half or more of the feed is water. Equal quantities by weight of water and sugar *does* make a very good feed for stimulative feeding; yet it is hardly fair to say that the feed costs only 4 cents a pound, and that the honey brings four times that, or more. She says, in plain print, "If you do not receive just what you order, write me; for I warrant every thing to reach the purchaser, and to be just as represented in this circular." This is promising a good deal, and I believe Mrs. Cotton holds to it much better than she did some years ago. I have taken this amount of space to notice Mrs. Cotton's circular, because a number of inquiries are sent in every year asking my opinion in regard to her "system" of bee culture.

FALSE STATEMENTS IN REGARD TO THE ADULTERATION OF CONFECTIONERY.

IT seems that it is not only in the honey business, but in the confectionery business as well, that sensational stories of a damaging character have been copied in regard to the fraud and corruption of the present century. All men are *not* cheats and liars; and it strikes me that the ones who maintain that they are, are the very chaps, and almost the only ones, who need putting in jail. The following was written by the editor of the New York *Confectioner* to the *Scientific American:*

In the editorial notes in your issue of January 18 you refer to the use of terra alba in confectionery, and state that the Board of Trade Journal of Portland, Me., is authority for the assertion that 6000 tons of terra alba were recently imported through this port for use in confectionery. I have before me the letter of the editor of that publication, in which he affirms that he had no authority for the statement, but that the article was clipped from some other publication, and the credit left off in the make-up by mistake. I have been unable to trace the statement about the terra alba to any reliable source, or to find any truth in it.

The other statement in your note, about the lozenges shipped to St. Louis over the South Shore Railroad, emanated from the National Druggist, and I have before me the letter of the editor of that publication saying that the affair occurred five or six years ago, before the National Confectioners' Association was organized.

Believing the Scientific American to be a fair and honorable publication, that would not willingly do injury to an honorable calling, I write so that you may make such reparation as would be proper, to counteract the harm done by the publication in your widely circulated journal; for the circulation of such reports is an injury to the trade.

There is no terra alba used now by any reputable manufacturer of confectionery. The National Confectioners' Association "offers a reward of one hundred dollars for evidence that will enable it to convict any person of adulterating confectionery with poisonous or injurious substances, the association assuming the cost and responsibility of prosecuting the offender." The publisher of the New York Confectioner pledges himself to pay over an additional $100 to the person who furnishes him with the evidence that will enable the National Association to effect a conviction, and several large manufacturers each offer $100 upon the same terms as the Confectioner. HARRY J. SHELLMAN.

New York, Jan. 17, 1890.

To the above, the editor of the *Scientific American* replies as follows:

The above assurances that the adulteration of confectionery with terra alba has practically ceased are very gratifying, and we have much pleasure in placing them before our readers.

I confess that the above was a little surprise to me. I have for so many years heard that candy is generally adulterated with terra alba that I had come to sup-

pose it was a fact; and I hereby humbly beg pardon of our friends who make our candies. I am very glad indeed to know that it was *only* a newspaper slander.

"HANDLING BEES."

THIS is the title of a little pamphlet by L. L. Langstroth, revised by Dadant. In short, it is a chapter taken from Langstroth on the Honey-bee. The price charged is only 8 cts. It is a very good sample of the many good things from that standard work, published by Dadant & Son, Hamilton, Ill.

THE REPORT OF THE OHIO CONVENTION.

THIS will appear in our next issue. Perhaps we might remark right here, that this was one of the best conventions Ohio ever had. During some of the sessions there were from eighty to ninety bee-keepers present. Dr. Mason said it compared very favorably in numbers and enthusiasm with the International held at Lansing.

THE BOHEMIAN-OAT BUSINESS REVIVED.

DIFFERENT individuals from Oneida Co., N. Y., write us that the Bohemian-oat business has revived in that locality; and not only are many going into it, but even good men strenuously insist that it is an honest and legitimate business, to buy and sell oats at $15.00 a bushel that can be bought of seedsmen for less than a dollar a bushel. As York State is one of the most progressive States in the Union, and Oneida County (at least we supposed so) one of the most progressive counties, we are at a loss to understand how this can be. In our own State of Ohio, so many men were ruined, both spiritually and financially, by this scheme of Satan, that our State passed a law for the protection of those who gave notes under the influence of these smooth-tongued agents. Their plan is to get hold of somebody who has had bad luck, and tell him that farming does not pay, in the regular honest fashion. They tell him that the only way to get rich is by getting the start of others by sharp practices. Then they make it so plain that he can not possibly lose, under any circumstances, that the poor victim borrows money, may be by mortgaging his farm. Sometimes they have cheek enough to keep the thing going for a whole year—perhaps longer. But finally the men who have no real estate, no family connections (nor principle), "light out" and leave their comrades with debts and mortgages hanging over them, to take the consequences as best they can.

comes from Wisconsin, where the honey-flow is so abundant almost every year. Price of the seed will be as follows: By freight or express, with other goods, 18c. per lb.; $2.00 per peck; $3.90 per half-bushel; $7.50 per bushel, bag included. One pound, by mail, 27 cents.

Present price of alsike, the next in value as a honey-producer, is 25c. per lb., postpaid. By express or freight, 15c. per lb.; $1.90 per peck; $3.60 per half-bushel; $7.00 per bushel.

OUR NEW SEED CATALOGUE.

Our edition of this for the spring of 1890 is just out. It is not a very nice catalogue compared with many others, and it is so small there was not even room for pictures of the new vegetables; neither are the seeds which we offer *better*, probably, than those offered by many other seedsmen. It does, however, give the names of just a few of each variety, such as we have been best pleased with. Our seeds are probably as good as any, and our prices are quite low. We should be very glad to send it to any one who is interested.

KUMERLE LIMA BEANS.

Nobody seems to have succeeded in getting even a few for seed, during the unfavorable season of last summer, except ourselves, and we have now but little more than a pint. You remember we gave for the seed last year their weight in gold, or a little over 50 cts. a bean. Well, so many have been wanting one or two beans, just to try, that I find myself obliged to put some sort of price on them. If anybody cares to pay 25 cts. a bean for the few I have, they can have them. But I hope there will not be many who want them at that price. It is not settled yet that they will mature in this climate. Hadn't you better wait, friends, until we give them a good test during the coming season?

COMB FOUNDATION AND BEESWAX ADVANCED.

We are compelled again to advance the price of comb foundation, because of the advance in beeswax. This has been slowly increasing in price for two years past, with slight fluctuations. We have to pay now, on an average, 4 to 5c. per lb. more for wax than we did two years ago. We dislike to raise prices, and have been holding off, working on smaller margins, hoping wax would go no higher; but it is impossible longer to sustain catalogue prices. We will pay for average wax, delivered here, 24c. cash, 27 in trade, and the same will be sold at 30c. per lb. for average, and 35 for selected yellow. Price of all grades of comb foundation is advanced 5c. per pound, and the revised table is as follows, taking effect to-day:

Packed in neat boxes, with tissue paper between every two sheets.	Heavy brood 4 to 6 ft to lb	Light brood about 7 ft to lb	Thin surpl's about 10 ft lb	Extra thin about 12 ft lb
1 to 10 lbs. per lb	45	48	55	65
10 " 25 " "	44	47	54	64
25 " 50 " "	43	46	53	63
50 " 100 " "	42	45	52	62
100 " 200 " "	41	44	51	61

SPECIAL NOTICES.

WANTED — SEED OF THE FIGWORT OR SIMPSON HONEY-PLANT.

Can anybody furnish us seed of the figwort or Simpson honey-plant? If so, please send sample, and say what you want for it.

PRICE OF JAPANESE BUCKWHEAT.

We are selling the new Japanese buckwheat, till further notice, as follows: Trial packet, 4 ounces, by mail, postpaid, 5c.; one pound, by mail, postpaid, 15c.; one peck, 35c.; ½ bushel, 60c.; bushel, $1.00. These prices include bag to ship it in. Ten or more bushels, purchaser paying for bags, 75c.

WHITE DUTCH CLOVER SEED REDUCED.

We have secured over 20 bushels of very choice white-clover seed, at a price which makes it possible for us to sell it at ¾ of the old price. The seed

CONVENTION NOTICES.

The spring meeting of the Missouri State Bee-keepers' Association will be held at Marshall, Saline Co., Mo., on Wednesday and Thursday, April 16 and 17, 1890, in the county court-room. Reduced rates at hotel, for bee-keepers, have been secured. A cordial invitation is extended to bee-keepers everywhere to attend, and especially those of Missouri. Essays from prominent men are expected. J. W. ROUSE, Sec'y.
Santa Fe, Mo.

The annual meeting of the Kent and Essex Bee-keepers' Association will be held on Tuesday, March 13, 1890, in Templars' Hall, Essex Center, Ont. G. C. SCOTT, Sec'y.
Chatham, Ont.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of queens, bees, and apiarian supplies in general, from the following parties, who will be glad to furnish them to applicants. Those marked with a star (*) also deal in fine poultry.

H. G. Frame, North Manchester, Ind.
R. E. Smith, Tilbury Center, Ontario.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

TOBACCO AGAIN, BUT PAYS FOR THE SMOKER.

Three years ago I promised to quit the use of tobacco for a smoker. I did quit until a short time since. I have partly taken up the habit again. You will find inclosed $1.00, which I think I owe you.

J. W. GANDY.

Stanton, Chilton Co., Ala., Dec. 28, 1889.

A GOOD FRIEND WHO DOES NOT PROPOSE TO GIVE UP TOBACCO FOR GOLD OR DIAMONDS.

Mr. Root:—I understand from the columns of your paper that you offer a smoker to any man who will give up the use of tobacco. Permit me to say, that, if your smoker were made of gold, and studded with diamonds, I should still prefer the pleasure of tobacco-smoking. A. JUNOR.

Good Luck, Texas, Feb. 5.

Well, well, friend J., you are certainly strong in the faith, at least on one side of the question. All right. It is your privilege to hold fast to the tobacco, if you prefer; but, dear brother, are you sure that you want the boys and girls of the coming generation to follow you? Very likely you have children of your own; and whatever papa does, must, of course, be considered the proper thing to do. Do you want these little ones to follow in your footsteps? And another thing, dear brother: Would it be well if all the world were to put self and selfish enjoyments beyond every thing else, as you do? The use of tobacco must necessarily give pain and unhappiness to others about you, unless all the inhabitants, both women and children, as well as men, in that pretty town of yours named Good Luck, should go and do likewise. And would you, my friend, want to live where everybody uses tobacco? Perhaps you have not read our journal much. If you have you have certainly noticed that the use of tobacco kills both mind and body, with many; but even when the mind is failing, and the victim of the habit is forced to acknowledge it, the struggle is so great to give it up that he sometimes goes down to insanity and death rather than to undertake to fight the terrible battle. I thank you for your frank square way of expressing your views in regard to the matter; but, dear friend, I hope and pray that you may reconsider this position you have so vehemently taken.

Since the above was in type, our proofreader hands me the following, which was taken from the *American Grocer:*

Rev. Dr. Lanahan, from Baltimore, a member of the Methodist General Conference, now in session in this city, and a member of the Committee on Episcopacy, was sitting one afternoon this week at the Sturtevant House, when a newspaper man addressed him:

"You are being mentioned as a future bishop, Doctor."

"Bless your soul, young man, I'm ineligible."

"Ineligible, Doctor?"

"Yes. You see, I use tobacco. I both smoke and chew. I would rather smoke than be a bishop."

"Does smoking make you ineligible?"

"Well, the Conference is not going to elect any one who uses tobacco; and between the two, I lean to the cigar."

May God continue to bless the General Conference in the future as he has in years past; and may they never let up on tobacco, no matter whom it throws out.

KIND WORDS FROM OUR CUSTOMERS.

GOD'S GIFTS TO THE TILLER OF THE SOIL.

I do think gardening and tilling the soil brings us nearer Him who was so wise and good as to bestow such mysterious blessings as these. GLEANINGS brings new courage even to me. I often feel like shouting "amen" to many of the talks therein. I know I should enjoy a look at your place, especially the fruits. I don't think, on the whole, you will ever get a strawberry to excel the Crescent, crossed with the Wilson. I have handled fruits for years, and I get the best results from these.

Hallowell, Me., Feb. 5. E. P. CHURCHILL.

KIND WORDS FROM A SOUTHERN NEIGHBOR.

I commenced bee-keeping in 1885, with two American hives, from which I now have 22. I know you will say that I am not a modern bee-keeper; but the fact is, I knew but very little about the insect until I read your A B C. I did not get over 15 lbs. per colony this season, owing to the fact that it was out of the question to give them the necessary attention. My hives are almost all patterned after the Simplicity. I noticed, during the month of September and a part of October, that the yellow-jackets were robbing my bees. I contracted the entrance, but the mischievous things seemed to kill the bees and take possession of the hives. They can go where a bee can't, as they are some smaller, and they are tougher and harder to kill. I was greatly provoked to see them stinging the bees to death at the entrance. However, on examination I found plenty of stores to carry the little fellows through the winter. The weather here at this date is like that of June—too warm to wear a coat with comfort. It is quite different, I guess, from the temperature in Medina. I would necessarily step around lively to keep comfortable with you in Ohio. I am running a steam cotton-gin, and a grist-mill also. I will run a small bee-hive factory to accommodate "myself and my neighbors." We have the best long straw-yellow pine lumber to make hives of. I know you would like it to work up into hives. It is, however, a fraction heavier than the lumber you work, but it is impervious to heat and rain, nor has it any unpleasant odor. The bees seem to accept it almost or quite as well as the white pine. Perhaps one of these days I will come to Medina and see your beautiful apiaries, the factory, the market garden, and see you sell strawberries by lamplight. We have some nice plants; and when they bear I will send you some early ones—that is, if you will divide with Mrs. R. and the little ones. I wish I lived nearer you; yes, I should like to live within a few hundred yards of you. I feel indebted to you for the moral good you have effected by your able articles in GLEANINGS from time to time. I really am anxious to meet you, and shake your hand, and know that it is A. I. Root. May we ever live in peace, and cherish the sacred, the beautiful, and the good! G. D. MIMS.

Falfa, S. C., Dec. 18, 1889.

Wait! Eggs! At half price from prize-winning Light Brahmas and Laced Wyandottes, $1.50 per clutch, after April first. No stock for sale until fall. SIGEL F. GROSS, Atwood, Ill.

BURPEE'S SEEDS ARE THE BEST

it is possible to produce by constant, most critical care, and are **WARRANTED,—few equal and none better.** Handsomely illustrated **CATALOGUE,** with **colored plates painted from nature,** of **RARE NOVELTIES** of sterling merit, mailed **FREE** to any address. *W. ATLEE BURPEE & CO., Philadelphia, Pa.*

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1421 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L Hanssen, Davenport, Ia ; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to

4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS

Coming to Washington, D. C., will find pleasant rooms and board (by day or week) at special rates. Satisfaction guaranteed. Central location.

1301 K. St., N. W. 3tfdb F. DANZENBAKER.

☞In responding to this advertisement mention GLEANINGS.

SECTIONS and SUPPLIES

CHEAPER THAN EVER.

STRICTLY WHITE BASSWOOD V-GROOVE SECTIONS, SMOKERS, HONEY-CASES, BERRY-BOXES, AND A HOST OF OTHER GOODS.

Send for free price list and catalogue. Address

G. B. & S. CO.,
Box 323. Goshen, Elkhart Co., Ind.

☞In responding to this advertisement mention GLEANINGS.

MUST SELL!

50 Colonies Italian Bees at $5.00 each, f. o. b., in 8-frame L. hives, telescope caps. Most of the combs built on fdn. in wired frames. These bees were very heavy in stores in the fall. Reasons: Can keep only about 25 colonies here in the city, and my business will not allow starting out-apiaries. Ship in April or May. **W. E. YODER,**

4tfdb LEWISBURGH, UNION CO., PA.

☞In responding to this advertisement mention GLEANINGS.

JAPANESE BUCKWHEAT AT $1.20 PER BUSHEL. Eggs from pure-bred Partridge Cochins, and S.C. Brown Leghorns. Strawberry-plants. 4-5d C. B. JACKSON, Eau Claire, Eau Claire Co., Wis.

SEEDS. Don't buy your seeds or plants till you see my FREE 1890 catalog. I offer something wonderful. Send for it. F. B. MILLS, Thorn Hill, N. Y.

PEACH TREES

Wholesale and Retail. Send for prices.

4-5d E. S. JOHNSTON, Stockley, Delaware.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

☞In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,
Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with Tested Queen, or 5 for $25.00.

In Simplicity or L. 10-frame hives; 250 colonies to draw from. Address

4-9db JNO. A. THORNTON, LIMA, ADAMS CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

$1.50 REVERSIBLE 8-FRAME LANGSTROTH HIVE.

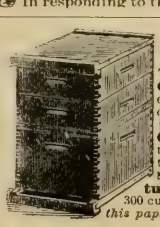
J. B. WILCOX, - - MANISTEE, MICH.

☞In responding to this advertisement mention GLEANINGS.

BEAUTIFUL BEES are always pleasing to the eye.
GOOD QUALITIES are always profitable.

If you want Bees and Queens that combine beauty and good qualities to a *marked degree*, write for circular giving low prices. No circulars sent out unless applied for. **CHAS. D. DUVALL,**
Spencerville, Mont. Co., Md.

☞In responding to this advertisement mention GLEANINGS.



BEES AND HONEY

The Dovetailed **Strongest, Best** and **Cheapest BEE-HIVE** for all purposes. Pleases everybody. Send your address to the **Largest Bee-Hive Factory in the World** for sample copy of **Gleanings in Bee Culture** (a $1 illustrated semi-monthly), and a 44 p. illustrated catalogue of **Bee-Keepers' Supplies.** Our **A B C of Bee Culture** is a cyclopedia of 400 pp., 6x10, and 300 cuts. Price in cloth, $1.25. ☞ *Mention this paper.* **A. I. ROOT, Medina, O.**

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The Bee-Keepers' REVIEW

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free. Send for them, and learn how to get the back numbers cheaply.

W. Z. HUTCHINSON, Flint, Mich.

☞In responding to this advertisement mention GLEANINGS.

For Perfect Draft, Simplicity, and Durability, BINGHAM PATENT SMOKERS, AND BINGHAM & HETHERINGTON UNCAPPING - KNIVES ARE WITHOUT QUESTION

THE BEST ON EARTH.

Send for descriptive circular and testimonials.

1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.

☞In responding to this advertisement mention GLEANINGS.

SEEDS. Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. F. B. MILLS, Thorn Hill, N. Y.

FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

Bees Poultry Bees Poultry Bees Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at $1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete stock of Apiarian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db

R. B. LEAHY & CO., Higginsville, Mo.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE—6 colonies hybrid bees in Root Dovetailed hives at $4.00 per colony. Address
5-6d T. L. THOMPSON, Blairsville, Indiana Co., Pa.

The SWARM-HIVER

Sent by mail, and the **American Apiculturist** one year, $1.50. *Circulars and sample copies free.*
Address AMERICAN APICULTURIST,
5tfdb Wenham, Mass.

☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, $2.00; after June 1, $1.50. Untested queens, $1 00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES & CO.,
4-9db Bryant Station, Maury Co., Tenn.

☞In responding to this advertisement mention GLEANINGS.

SECTIONS, $3 PER 1000.

Foundation, Alsike clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our FREE PRICE LIST. M. H. HUNT, Bell Branch, Mich.

Please mention GLEANINGS. 1tfdb

☞In responding to this advertisement mention GLEANINGS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
5tfdb CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.

☞In responding to this advertisement mention GLEANINGS.

Eaton's Improved SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
2-13db Bluffton, Ohio.

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the **best** Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3.50 per 1000.

☞ Parties wanting more should write for special prices. No. 2 sections, $2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

☞In responding to this advertisement mention GLEANINGS.

PRICES ADVANCED

—ON—

Wire Netting and Comb Foundation.

Wire netting advanced nearly **20 per cent** over prices on opposite page. Comb foundation **5c per lb.** higher. See particulars in Special Notice column.

A. I. ROOT, Medina, Ohio.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To hear from parties having potatoes, onions, and apples to sell. Onions especially wanted. Consignments solicited. Always ready to buy. Good reference given. 6d
EARLE CLICKENGER, Columbus, O.

WANTED.—To exchange 1000 new bee-hives, all complete, for bees, or will furnish hives, sections, and foundation, for share of the honey, to parties living in Maryland, Virginia, or West Virginia. Write for particulars to
F. DANZENBAKER,
3tfdb 1301 K. St., N. W., Washington, D. C.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation.
1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange foundation, for beeswax. Sample on application.
5tfdb Avery's Island Apiary, Avery, La.

WANTED.—To exchange fdn. (worker size) for hives and other apiarian supplies, in the flat.
6d W. O. VICTOR, Wharton, Wharton Co., Tex.

WANTED.—To exchange nursery stock for shot-gun or lawn-mower. GEO. GOULD,
4-56d Villa Ridge, Pulaski Co., Ill.

WANTED.—To exchange one Acme harrow, new, for Poland-China swine, either sex, or Shropshire ewes, or any thing I can use on the farm or in the apiary. LUTHER PURDY, Killbuck, O. 5tfdb.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange Turner and Cuthbert raspberry-plants for pure Italian queens, eggs for hatching, etc. E. R. MILLER,
5-6-7d Garden City, Cass Co., Mo.

WANTED.—To exchange comb honey and Japanese buckwheat for extracted honey and comb foundation. F. WILCOX,
5-6d Mauston, Juneau Co., Wis.

WANTED.—To exchange for supplies, or part payment for Barnes saw, one Twombly knitting-machine, with coarse plate; nearly new.
5d J. M. MOORE, Holden, Mo.

WANTED.—To exchange 1 Belle City feed-cutter. (cost $65 00 new), in good condition, also one power saw-table for making bee-hives, for strawberry-plants or peach-trees. EARLE CLICKENGER,
6d Columbus, O.

WANTED.—To exchange one Green's solar wax-extractor, *new*, for an incubator or Italian queens. G. C. HUGHES,
6tfdb Pipestem, West Va.

WANTED.—To exchange bees and queens, in season, for incubator, fowls, or eggs. 6d
ALBERT L. MARTIN, Leonardsburg, O.

WANTED.—To exchange Monumental 8 x 12 self-inking lever-power printing-press and outfit, cost $200, for a 3 or 4 H. P. boiler and engine. 6d
J. T. FLETCHER, Clarion, Pa.

WANTED.—To exchange a 24-inch achromatic telescope (value $10.00) for small foundation-mill, worker size. L. L. ESENHOWER.
6d Reading, Pa.

WANTED.—Black and hybrid queens.
GEO. H. GRACE, Perry, Iowa.

WANTED.—Help on farm, and to care for 18 colonies of bees. State wages wanted by year or eight months. G. J. GRAY, Dell, Ore. 6 7d

WANTED.—To exchange choice fruit-trees for bees, queens, and supplies. 6d
J. B. ALEXANDER & Co., Hartford City, Ind.

WANTED.—To exchange thin fdn. for honey. 5d
C. W. DAYTON, Bradford, Ia.

WANTED.—Situation as apiarist; 5 years' experience; single; good workman in wood. 6d
CHAS. L. HILL, Dennison, O.

WANTED.—A person of experience in bee-keeping to take charge of an apiary of fifty colonies of Italians for half the profits. Swarming begins the first of April; honey season closes the first of June. J. B. MITCHELL,
6-7d Hawkinsville, Ga.

WANTED.—To exchange plants of Cal. wild flowers and ferns, specimens of woods, and minerals, for strawberry and raspberry plants, back numbers of bee-literature, and supplies. W. C. AIKEN,
Lock Box 214, St. Helena, Cal. 6d

WANTED.—To exchange one thrasher and cleaner, two-horse power, for bees—Italian preferred—or offer. L. A. FOSTER,
6d Rockdale, Chenango Co., N. Y.

WANTED.—To exchange job printing, garden and farm seeds, plants, eggs for hatching, and other articles, for bee-supplies or offers. Free lists.
6-8d H. A. HUBBARD, New Lisbon, Ots. Co., N. Y.

WANTED.—To exchange a complete photographic outfit for a complete new improved Barnes foot-power saw. F. SHILLING,
6d Jewett, Harrison Co., O.

WANTED.—To exchange as good S. C. Brown Leghorns as can be found in the U. S., or eggs from same, for supplies of any kind; or bees and queens. ROBT. C. SMITH, Swissvale, Alle. Co., Pa.

WANTED.—To exchange an accordion, white Holland turkeys, and Rose Comb American Dominique Cockerels, for a double-barreled breech-loading shot-gun, 32 or 38 caliber revolver, repeating rifle, or offer. WM. ELWICK, Decorah, Ia. 6d

WANTED.—To exchange a handsome male Scotch collie for Italian bees. ROBERT WALLACE,
6d Turkey, Mon. Co., N. J.

I WANT YOU

To send for illustrated catalogue of Albinos and Italian Queens and Bees for 1890. Address
A. L. KILDOW & BRO., Sheffield, Ill.

MURDER! MURDER! MURDER!

Yes, all high prices in bee-supplies murdered at R. E. Smith's Bee-hive factory, Tilbury Center, where you can buy all kinds of bee-supplies at rock-bottom figures. **300** swarms of bees for sale. Bees by the pound or nucleus; Queens, Comb Foundation, Honey-Extractors, Smokers, and the Excelsior Hive—20 years in use. Send for our 8th annual price list, now out. **R. E. SMITH,**
Box 72. Tilbury Center, Ont., Can.
☞In responding to this advertisement mention GLEANINGS.

New Orleans Apiaries for 1890

Orders are now taken for early ITALIAN and CARNIOLAN guaranteed Queens. Send for price list of Best and Cheapest Apiarian Supplies offered. Address **J. W. WINDER,**
6tfdb **572 Magazine St., N. O., La.**
☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—ITALIAN BEES & QUEENS at a very low price. Address
6tfd *OTTO KLEINOW,*
No. 150 Military Ave., Detroit, Mich.

FOR EARLY ITALIAN QUEENS SEE W. H. LAWS' advertisement, Mar. 1.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—Comb honey is selling well at 12@13 for best grades. Receipts are fair for the season; but as it will sell slowly after this month, all having any to market here should forward it now. Dark combs are slower sale at 9@10; extracted dull, but prices are about the same—6@8.
Beeswax, 25@27, and small offerings.
R. A. BURNETT,
Mar. 8. 161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—The demand is all that could be expected at this season of the year, and prices remain unchanged. We quote: Clover, 12@14; mixed, 10@12; buckwheat, 8@10; extracted, light, 7@8; dark, 6@7. C. MCCULLOCH & Co.,
Mar. 10. 339 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—The demand for honey is improving a little, but no improvement in prices. We quote white 1-lb. sections at 11@12; 2-lb., 10@11. Fall, 1-lb., 9@10; 2-lb., 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, 22.
Mar. 7. CLEMONS, CLOON & Co.,
Cor. Fourth and Walnut Sts., Kansas City, Mo.

ST. LOUIS.—*Honey.*—We quote comb, 12½@13; dark, 10@10½; extracted, bright color, 5¼@5½; dark, 4½@5. *Beeswax*, 24, for prime.
D. G. TUTT GROCER CO.,
Mar. 10. St. Louis, Mo.

CINCINNATI.—*Honey.*—Demand for extracted honey is good, especially from manufacturers, at 5@8 on arrival. There is a fair demand for comb honey at 12@15 for best white, in the jobbing way.
Beeswax.—Demand is good, at 20@25 for good to choice yellow, on arrival.
CHAS. F. MUTH & SON,
Mar. 7. Cincinnati, O.

KANSAS CITY.—*Honey.*—Demand is very light. Fancy 1-lb. comb, 13; good white, 12; dark, 8@10; 2-lb. comb, white, 10@11; dark, 8c. Extracted, white, 6@7; dark, 5@5½.—*Beeswax*, 22.
HAMBLIN & BEARSS,
Feb. 26. Kansas City, Mo.

NEW YORK.—*Honey.*—Strained and extracted, dark, in demand, and there is no stock of it; supplies are sold immediately on arrival. We quote same at 5½@6½, or at 72 to 78c per gallon. Of comb honey we have only a few small lots of fair and mixed grades left, which are selling slowly. We could place several hundred crates of strictly fancy white, in cartons, at about 13@15.—*Beeswax*, 25; demand good. F. G. STROHMEYER & Co.,
Feb. 21. New York.

BOSTON.—*Honey.*—We quote: Fancy 1-lb. comb honey at 16c. Any thing off grade sells considerably below this amount; 2-lb. combs, 15c for the best quality. Extracted, 7½@8½. No beeswax on hand.
BLAKE & RIPLEY,
Mar. 11. 57 Chatham St., Boston, Mass.

SAN FRANCISCO.—*Honey.*—Honey in fair demand. Extracted, 5½@6½; comb honey, best, 12@14; ditto second quality, 8@11.—*Beeswax* is scarce at 20@22.
SCHACHT, LEMCKE & STEINER,
Mar. 4. 16 & 18 Drum St., San Francisco, Cal.

COLUMBUS.—*Honey.*—Honey still selling slowly at 14@15 for fancy white clover. Dark and inferior grades meet with no sales. Extracted honey, dull. Trade in general, quiet. EARLE CLICKENGER,
Mar. 8. Columbus, Ohio.

MILWAUKEE.—*Honey.*—The demand for honey is very good, and supply fair. Can now quote white 1-lb. sections, 12@13, and if absolutely perfect sometimes can obtain 14c; 2-lb. sections, white, 12@12½; 1-lb., dark, 10@11; 1-lb., old, 8@9. Extracted, ½ bbl. and bbls., white, 7@8; pails and tin, white, 8@8½. Bbls. and ½ bbls., dark, 6@6½. *Beeswax*, 22@25.
A. V. BISHOP,
March 13. Milwaukee, Wis.

DETROIT.—*Honey.*—Comb honey is selling slowly at 11@13c; stock not large. Extracted, 7@8. *Beeswax* firm at 25c. M. H. HUNT,
March 10. Bell Branch, Mich.

FOR SALE.—1200 lbs. extra-fine orange-bloom honey, in bbls. of 360 lbs., at 8c per lb., or in 60-lb. can, $5.00. Package free. This honey will give satisfaction every time. MODEL B. HIVE CO.,
Pure Honey and Bee-Keepers' Supplies.
W. Philadelphia, Pa.

WANTED—Honey, both comb and extracted. For particulars, address O. H. HYATT,
Shenandoah, Page Co., Iowa.

REVIEW OUR 1890
16-page circular of bee-keepers' supplies, etc. Also note prices of our choice strain of Italian bees. Circular free. Address JNO. NEBEL & SON,
5tfdb High Hill, Mo.

OWING to rising prices of beeswax we now quote an **Advance of 5 cts.** on comb foundation over February prices, both wholesale and retail. **Beeswax Wanted** in any quantity. 6-7 8d
DADANT & SON, Hamilton, Hancock Co., Ill.

H. G. FRAME, NORTH MANCHESTER, INDIANA,
Breeder of Italian and Carniolan Queens. Bees by the pound and nucleus. Price list free.
5tfdb Reference First National Bank.

BEES SEND for a free sample copy of the BEE JOURNAL—16-page Weekly at $1 a year—the oldest, largest and cheapest Weekly bee-paper. Address
16tfdb BEE JOURNAL, Chicago, Ill.

BEES FOR SALE
COLONIES,
NUCLEI,
AND QUEENS,
at living rates. Send for circular and price list to
C. C. VAUGHN & CO.,
4tfdb Columbia, Tenn.

☞In responding to this advertisement mention GLEANINGS.

Established 1878.
SMITH & SMITH,
Wholesale and Retail Manufacturers of
BEE-KEEPERS' SUPPLIES.
KENTON, OHIO.
Price List Free. *Mention Gleanings.*

BEES. South Florida. QUEENS.
Eight years' experience. I am better prepared than ever before to fill orders promptly, and guarantee satisfaction and safe arrival. Tested Italian queens, $1.50; untested, 75c, or $8.00 per dozen. I make a specialty of shipping in time for Northern fruit-bloom, four-frame (L. and S. wired) nuclei, *full* of bees and hatching brood, with queen, at $4.00. Ready to mail or ship, as climate permits.
3tfdb LUTHER W. GRAY, Orlando, Fla.
☞In responding to this advertisement mention GLEANINGS.

SUPPLIES!
Send for circular—free. WALTER S. POUDER,
175 E. Walnut St., Indianapolis, Ind.
5tfdb (Successor to F. L. Dougherty.)

SECTIONS.
$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. NOVELTY CO.,
6tfdb Rock Falls, Illinois.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—A few stocks of pure Italian bees in the L. portico hive, on 7 frames, at $5.50, or two stocks for $10.00. C. G. FENN,
6d Washington, Litchfield Co., Conn.

1884. TAR-HEEL APIARIES. 1889.

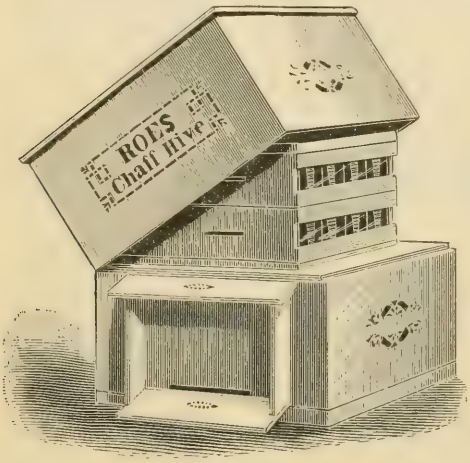
After May 1st, Warranted queens $1; prior to May, $1 50; Virgin qu., 50c; Bees, $1 per lb.; Nuclei, 75c per L. frame. Thin foundation, 50c per lb. *Selected Exhibiting* and *Breeding* Queens, $5. Sample of *4 and 5 Banded Bees*, and *Red Drones*, 10c. Finest in the U. S. Price list free.

American Albino Italian

SMALL ENGLISH YORKSHIRE PIGS! "Duke of Goldsboro, No. 861," Duchess of Goldsboro, No. 1523," "Lady Wayne, No. 1529," heads my herd-pigs; $6 each; $11 per pair. 6-7-9d

ABBOTT L. SWINSON, Goldsboro, N. C.

☞In responding to this advertisement mention GLEANINGS.



I am selling Chaff Hives away down low. Send for my price list.

6d J. A. ROE, Union ity, Ind.

☞In responding to this advertisement mentn. GLEANINGS.

RARE! NOVEL! GOOD! CHEAP!

A meritorious novelty, white as snow, first-rate eating, easily grown and kept, wonderfully productive. *Free catalogue* has fuller description of it, and prices (low) of Novelties and standards in SEEDS and PLANTS, also QUEENS. Send 30c for 5 tubers of STACHYS, as above; a root of the beautiful fragrant CINNAMON VINE, which grows up rapidly each spring; a packet of POWELL'S, the most productive pole bean; of HONEY, a choice sweet corn; of FLOWER SEEDS, over 100 varieties, mixed, and a small tuber of POOTATUCK, a fine new early potato. All postpaid for only 30c. Five collections for $1.00.

CHRISTIAN WECKESSER, Marshallville, O.

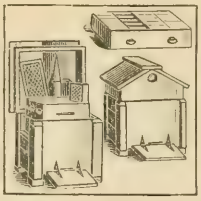
Mention this paper. 6-7d

STRAWBERRY-PLANTS.

A No. 1 plants, true to name, from new ground. Jessie and Bubach, 75c per hundred, $5 00 per thousand. Crescent and Sharpless, 50c per hundred, $3.00 per thousand. By mail, add 20c per hundred for postage. **F. S. McCLELLAND & BRO.,**

6d **Box 379, New Brighton, Pa.**

☞In responding to this advertisement mention GLEANINGS.



HILTON'S

Improved Chaff Hive

AND T SUPER.

The pamphlet: "How I Produce Comb Honey." Price 5 cts. Send for free illustrated price list of everything needed in the apiary.

5-10db **GEO. E. HILTON, Fremont, Mich.**

☞In responding to this advertisement mention GLEANINGS.

BASSWOOD TREES.

Basswood-trees 1 to 3 feet high.....$ 1 50 per 100.
" " 1 " 3 " " ..... 10 00 " 1000.
" " 3 " 5 " " ..... 2 50 " 100.
" " 3 " 5 " " ..... 20 00 " 1000.

-6d Address **HENRY WIRTH, Borodino, Onon. Co., N. Y.**

☞In responding to this advertisement mention GLEANINGS.

QUEENS! EARLY! QUEENS!

Italian queens promptly shipped after March 15. Tested queen..... $2 00 | Untested $1 00
Three Untested Queens..... ...$2 75

Two-frame Nucleus with Untested Queens after April 1st, $2.50. We use the Simp. frame, and guarantee safe arrival, etc. Circulars free. Make money orders payable at Clifton. Address 5tfdb

COLWICK & COLWICK, Norse, Bosque Co., Texas.

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS AND BEES,

Bred the coming season from Imported mothers, will be ready to send out the first of June. Send for free circular, to **JOHN ANDREWS,**

1-6db **Pattens Mills, Wash. Co., N. Y.**

☞In responding to this advertisement mention GLEANINGS.

BUSINESS.

I will be prepared by April the 10th to ship untested queens bred from my fine strain of non-swarming Italians. These bees are gentle, prolific, and fine honey-gatherers. Satisfaction and safe arrival guaranteed. If by chance a queen should prove not good I will gladly replace her when notified of the fact. R. B WILLIAMS.

6-7-8d Box 72. Winchester, Tenn.

SPECIAL CROPS.

A magazine for advanced agriculturists; 25 cts. per year; sample 7 cts. Also, Black Minorcas, B. Leghorns, and S. Wyandottes; eggs of either, per setting, 75 cts.; 26 at one time, $1.00. 4-50d

C. M. GOODSPEED, Skaneateles, N. Y.

☞In responding to this advertisement mention GLEANINGS.

BEAUTIFUL BEES are always pleasing to the eye.
GOOD QUALITIES are always profitable.

If you want Bees and Queens that combine beauty and good qualities to a *marked degree*, write for circular giving low prices. No circulars sent out unless applied for. **CHAS. D. DUVALL,**

5tfdb **Spencerville, Mont. Co., Md.**

☞In responding to this advertisement mention GLEANINGS.

CONSIGNMENTS OF HONEY

And **BEESWAX** solicited. Send samples, state particulars, and mark from where samples come.

6-7-8d **HOGE & PHIPPS, 264 Willoughby Ave, Brooklyn, N. Y.**

CARNIOLAN QUEENS AND BEES.

I make this race of bees a specialty. Untested queens after June 1st, $1.00 each. Send for circular and price list to **A. L. LINDLEY,**

6tfdb **Jordan, Ind.**

Vol. XVIII. **MAR. 15, 1890.** **No. 6.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

"WE BEE BRETHREN."

BY REV. NORMAN PLASS.

Now you jes' turn to *Genesis*—
  The chapter I don't mind;
But that don't make no difference,
  'Cause some one else couldn't find
The place like me, so when he did,
  Rememberin' he'd fergot,
He writ along on top the page
  'Bout "*Abraham and Lot*"—
Jes' look fer that, and read the page,
  And pretty soon you'll see
How Abraham and Lot fell out
  'Cause they could not agree.

It wasn't *them* that quar'ld, tho',
  But 'twas their *hired men*,—
Because they had so many cows
  And calves, I s'pose, that, when
They came to water at the well—
  The only well they had—
Each man was bound to be there fust,
  And got etarnal mad
Because some other critter came
  When he had drawed the water,
And gulped it down as unconcerned
  As tho' she thought she'd orter.

Then each hired man, like boys when mad,
  Would run and tell his boss,
And 'twixt them was an endless strife
  That worked to each one's loss.
Now, Abra'm didn't like to quar'l,
  And so he said to Lot:
"If me an' you can't peaceful be,
  Then we had better not
Attempt to live tergether more;
  So, now, we'll separate;
You choose what ground *your* cows can pick,
  And on the rest *mine'll* bait."

I s'pose that, in them early days,
  There was no irrigation;
And when one well was all they had
  It stirred up irritation.
Jes' so to-day we sometimes must
  Drink at a single well;
And when we tread each other's toes,
  Sometimes—it's sad to tell—
We claw and hook, and strike and kick,
  And stir up such a battle
That any one that's looking on
  Can't tell the men from cattle.

But now you run the story thro',
  And you'll diskiver whether
They both got on in fust-rate style
  When they didn't live tergether.
What I am driving after now,
  Is not the cows a-tetherin',
But tho'ts that Abraham divulged
  When he said, "*We* BEE *brethren.*"
That was the word he said to Lot;
  And when he'd spoken it,
One looked at t'other, and thenceforth
  They *didn't quar'l a bit.*

Whether their *bees* were troublesome,
  And stung each other's cattle;
Whether they swarmed around the troughs
  And helped bring on the battle,
The sacred narrative don't say,
  But only tells us that
When Abram said—"BEE *brethren we,*"
  It ended all the spat.
That's all we *know* about their bees—
  Jes' what them words disclose;
But they reveal to us the fact
  That *bee-men can't be foes.*

Now, when we find that there are things
  That make our feelin's roil,

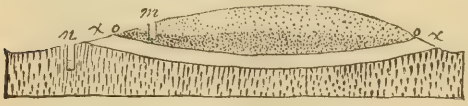
We should be keerful what we say
  Lest we some friend revile.
What if we *ain't* jes' *quite agreed?*
  Don't git so pow'rful stir'd;
"*Bee* brethren," we, like Abraham,
  Should speak the soothin' word.
It sorter seems to me, if we'd
  Observe the "golden rule"
We sometimes would our neighbor praise,
  And own ourself the fool.

WELLS ON HILLTOPS, ETC.

PROF. KOONS GIVES US SOME INSIGHT IN REGARD TO SUBTERRANEAN WATER.

ONE remark in your editorial following Prof. Cook's article in GLEANINGS for Jan. 15, on "Bad Well-water," calls up a very important principle in geology. Your sentence referred to a statement of the well-driller. "They said, that, although they could not understand it, yet practical experience seemed to decide that there is just as good a chance of getting water on high ground, or even on a hill, as anywhere else." The majority of men think of the "soil water"—that is, the water in the earth's crust—as standing at a uniform level, and that, going from the top of a hill forty feet high to the adjacent valley, will save just so much digging to secure water. A very large percentage of the water falling to the earth, in the form of rain or snow, sinks into its surface; the amount being determined by the character of the surface upon which it falls. For example, a sandy soil will absorb much more than a compact clay; and of the water thus absorbed, a part is again returned to the atmosphere by evaporation, while the remainder is retained in the soil, or finds its way to the surface again at lower levels, in the form of springs, wet and swampy places, directly into brooks or rivers, or even into lakes and the sea itself.

The water thus sinking into the surface, and becoming what is commonly called "subterranean water," if there were no interfering conditions, most naturally would find a common level, and the well-digger would be compelled to bore the extra forty feet spoken of above; but there are a number of circumstances that prevent this. For example, there may be the conditions illustrated in Fig. 1, where *x x* is a clay layer sufficiently compact to



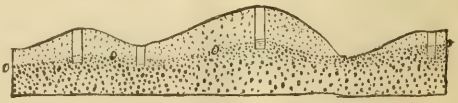
hold water like a basin, or the layer may be an impervious stratum of rock, and hence all that falls upon the hill *h*, and is absorbed, finds its way down into this basin, which may be yards, rods, or even miles across; and then the water appears again in the form of an overflow at the border *o;* may be in the form of a spring, or simply a wet place or places about the border of the hill.

A well dug at *m* would not have to go to the level of the water at *n*, because the water, by the peculiar conformation, is held much higher at the former locality than at the latter.

Another condition, illustrated by Fig. 2, also bears upon the subject. It illustrates well-known conditions on the south side of Long Island. *m* is the ocean, from which the island rises gradually to the north at a grade of about twenty feet to the mile; and actual observations, by digging wells, shows that the level at which water is reached is not on a level

with the ocean, but, beginning at low tide, the subterranean water is reached on a plain *o, o*, which rises about twelve or twelve and one-half feet to the mile, so that, at the distance of one mile from the ocean, as at *b*, water is found at about seven and one-half feet below the surface, although the island is twenty feet above low tide. At two miles from the sea, at *c*, the surface is forty feet above tide, yet water is found at a depth of fifteen feet; and three miles from the ocean-border, at *d*, where the island is sixty feet high, the water in the wells stands within about twenty-two and one-half feet of the top; and this same law holds good on to the center of the island, six miles from shore.

Thus it is seen that the water-plane, *o, o*, has an inclination, yet not so great as the surface of the ground, and may approximately conform to it, as illustrated by Fig. 3.



In these latter cases, and, indeed, to a certain extent, in Fig. 1, the water is held at a given height by its friction among the grains of sand, pebbles, etc., aided somewhat by capillary attraction also; so that the plane at which the subterranean waters are reached is a little higher at the center of the basin, Fig. 1, than at the borders—the water-plane, even here, imitating the undulations of the earth's surface, yet not rising and falling, see *o, o, o*, Fig. 3, to the same extent as the surface itself.

These are but few of the multitudes of conditions, under this complex subject, affecting the depth to which wells must be sunk in order to secure a constant supply of water; and only by a thorough knowledge of the underlying conditions in any given locality is it possible, accurately, to predict the depth to which a well must be sunk.

B. F. KOONS.

Connecticut Agricultural School, Jan. 25.

Many thanks, friend K. I was well aware of the point you make in the fore part of your article, but I had never before seen any thing in regard to water held in sand and gravel by capillary attraction, although I believe something of the kind exists in our low grounds; and by digging down from five to ten feet almost anywhere, we find wet gravel and sand, even during a severe drouth; and by sinking a cavity, water collects in sufficient quantity to water our plants. Now, I have had an impression that this water could still be held in the gravel, even though an underdrain were laid to carry it off. Our best celery ground is over such a gravelly

and sandy deposit; and during dry seasons plants seem to grow right along, without any need of rain. While at Green Bay, Wis., our good friend J. M. Smith informed me that an artesian well had been sunk there that gave water with sufficient pressure to raise it in pipes something like 80 feet. This location is also on the lake shore, where there are no hills of such a height within many miles.

BEE-ESCAPES.

HOW TO MAKE AND HOW TO USE.

THE editor's foot-notes on bee-escapes in GLEANINGS (see p. 100) would seem to call for more light on this subject, as *he*, even *he*, has not grasped the full meaning of the term and benefits to be derived. The horizontal escapes recently described by both Mr. D. and myself have not been thoroughly enough tested to warrant much being made over them, and may prove, like many plausible inventions that are incubated in the winter months by pleasant firesides, to fail to materialize under a July sun. Being anxious to have the new escape tested as soon as possible I have sent models to practical bee-keepers in Florida, and they promise to report as soon as they can. Tests can be made in this climate almost any time during winter—especially this one, with feeders, sections, and extracting-combs that need cleaning out, etc., but this is not a fair test, as there is no doubt about any style of escape working to perfection under such circumstances. What we want is an escape, simple and cheap, that will lead the bees out of finished or full *supers* down into empty ones or into the brood-chamber when the season is over, and one that is so simple and cheap that anybody can make. Please bear in mind, that the word super is applicable to extracting-cases as well as section-cases or super, and our editor must confess he has been very slow to "get hold" of the extracting part of it. You could not tell my extracting-supers from section-supers without looking inside. Friend Langdon and many others have used the vertical single-cone escape with entire satisfaction, and I am satisfied that this style of escape has not been much improved, taking into account the cheapness and simplicity of construction. Just think a minute. Take a board as long and as wide as your hive; arrange a bee-space on one or both sides, if necessary, to suit the hive or super you use. Bore a 2½-inch hole in the brood so it will come directly over the center of a section near the middle of the super. Cut a piece of green wire cloth 6 inches square; form it into a cone over the point of a 1½-inch round stick sharpened like a lead-pencil; tack the cone, which should be about three inches long, over the hole, and the escape is complete for either extracting or section supers. You will understand, an emptied super will have to be used for this escape-board, when it is placed between two extracting supers; also when the last super is to be taken off after the honey-flow has ceased. Now, when the escape-board is to be placed between a super of full sections and one with empty sections, take out one empty section (before the case is put on the hive), so the cone will have a space to drop into (I hope I make this quite clear). Place the super of full sections and bees on, and the bees will pass down into the super of empty sections, and very few will find their way back. Now, I do not think that any one would think of "fastening bees out of supers containing filled combs" (if the combs in the super are *filled* what need of bees in it?) without putting empty combs under the escape. J. S. REESE.

Winchester, Ky., Feb. 3.

Please do not be too severe on your old friend A. I. Root, friend R., even if he has *not* grasped all that is accepted of our new invention. The idea that I had in mind was this: When we decided that the upper story of the hive is ready to extract, we wish all the bees out of the way. With a bee-escape, however, it must take some little time, I should say three or four hours, or over night. If during the night, no honey will be lost, as a matter of course. During the day, when the hive has the brood-chamber already crowded with honey, there would certainly be a loss unless the bees could be employed on another set of combs, as you suggest. Now, even if the bee-keeper has an extra set of combs, some manipulation, as you suggest, is necessary. But has any one of our readers besides Mr. Langdon removed the bees from the combs for extracting, with a bee-escape? I know that we lose honey when we interrupt the bees; for whenever we used to extract our colonies that were kept on the scales, there would be a loss. Sometimes the bees that were shaken from the combs would cluster in a body on the outside of the hive, and very often would not get to work until the next day; and this very often resulted in making the yield next to nothing, from a hive that had been bringing in from 5 to 10 lbs. per day right along. Some colonies will go to work at once after being extracted from, I am well aware, but others will not. In working for comb honey it would be a much simpler matter to put a new crate, or a partly finished one, under the one that is ready to come off.

WANTED—HONEY-EATERS.

SHALL WE SHIP OUR HONEY TO THE CITIES?

TEN million people to eat honey! I thought I would not be too "cheeky" in the first call; but when this is answered, I will call for more. "Blessed Bees" was written to open up a market for supply-dealers, and now its readers want a demand for their product. Is there any thing unreasonable in this? What we want now is consumers, and not producers of honey. Judging from the price of this sweet, during the last score of years, producers have increased in a much greater ratio than consumers have. "What are you going to do about it?" Is there no help for it? I believe there is, if every producer of a pound of honey would put his own "shoulder-blades" to the wheel.

I know bee-keepers who tell with pride that they never sold a pound of honey at home. I know a bee-keeper who lives at a county seat of probably 1500 inhabitants who exultingly says: "I never sold a pound of honey in my town. I ship it all off in barrels." We have too many bee-keepers of this persuasion; and may their shadow grow less. Too little business to sell honey? Can't peddle. Oh, no! You ship your honey to large marts, where it accumulates until the price gets down lower than ze-

ro, and is thus quoted in the price lists of dealers; and by to-morrow every little one-horse grocery, from Manitoba to the gulf, will be quoting it. I never shipped any honey except once, and I humbly beg the bee-keepers of the country to forgive this indiscretion, and I will promise to do so no more. I employed two young men to pack and ship this honey. One of them was a natural-born peddler; and if I had set him to selling in lieu of shipping, I should have had my money sooner, and more of it.

I embrace every opportunity of bringing honey to the front as an article of food, and every one can create a demand if he will only "try, try again." I think there are but very few townships, six miles square, that produce more honey than they can consume, in the whole country, if it were thoroughly canvassed. I should like to belong to a guild of honey-producers who would bind themselves not to ship until their own neighborhood was supplied.

I'm glad that I stirred up Bro. Doolittle. I was wakeful last night, and I could see a picked crow, with only one tail-feather left. If he had written thus plainly before, I should not have lost my bees by following him; and now novices will be benefited. Many writers imagine that their readers know as much about bees as they do, hence failures.

Peoria, Ill., Mar. 6. MRS. L. HARRISON.

Mrs. H., right in line with your remarks, friend Danzenbaker, of Washington, D. C., who is now making us a visit, just remarked that he had recently sold his orange-grove in Florida, consisting of 22 acres. When I asked him if he produced orange-blossom honey, he said he had as much as 50 lbs. last season, and that he had sold it all for 25 cts. per lb.

"Why, friend D., where in the world did you find a market for the orange-blossom honey at 25 cts. per lb.?"

"Why, right where it was gathered, of course. I always sell my honey where it is gathered, and I believe I get a better price for it, as a rule, than I could get by sending it away off somewhere and having a great big freight-bill to pay."

IMPROVEMENTS IN BROOD-FRAMES.

IMPORTANCE OF WIRING COMBS, ETC.

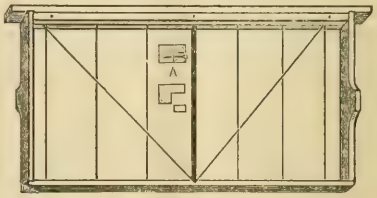
Friend Root:—A few days ago I sent you one of my improved brood-frames, and gave you some of my experience with the thick top-bars and brace-combs. I will now explain some other important features of this frame, which I think will commend themselves to all. I see that some are contemplating doing away with wire in the frames, as well as with the honey-board, by the use of heavy top-bars. I am satisfied we can never dispense with wire in our brood and extracting combs.

When combs contain sealed honey, and they are exposed to frost, they are almost sure to crack, and, if not wired, they will break out. Unwired combs also often break down from the effects of heat.

The breakage caused by dropping combs into the hive, or by shaking off bees, or by extracting the honey, far more than balances the expense of wiring. Another point in favor of wiring: We are enabled to fill eight frames with a single pound of thin foundation; whereas, without wire we must have foundation heavy enough to fill only four frames to the pound.

Having decided to use wire, the next question is, how to put it into frames with heavy top-bars. Some stretch the wires across from one end-bar to the other; but I should not like that way. The wires being so long, they would sag or sway, and not hold the comb true in the center of the frame. I think we can never improve upon the six vertical and two diagonal wires, and the central vertical folded tin bar. These, properly put in, hold the thin bottom-bar straight and rigid while every wire is stretched as tight as a drum-string, and the frame is braced, preventing its getting out of square, which is very important. The comb is stiffened in the middle by the tin bar, where it is inclined to sag out while the comb is being loosened from the extractor wire.

We can not very well sew these vertical wires through the heavy top-bars as we did through the light ones; and, besides, I was always disgusted with having wires stretched across the top of the top-bars. They are almost sure to be cut, sooner or later, while cleaning off the top-bars.



My plan is to saw out a square strip from one of the lower corners of the heavy top-bars, which makes a rabbet half as wide as the top-bar. The wires are looped over the heads of small wire nails, which are driven into the vertical side of this rabbet. The tin bar is sprung in, in the usual way. The sheet of foundation is cut to fill the frame, including the rabbet.

After imbedding the wire and tin bar with a machine that does it at one operation, the strip that came out of the rabbet is dipped into melted wax and rosin, and pressed into the rabbet over the top edge of the foundation, the nail-heads, etc., and nailed, which, I assure you, thoroughly fastens the foundation at the top.

At some future time I may describe how all the wire nails are driven into the top-bar at one stroke by magnetism; how the wire is run into the frames on wheels; how the very thin foundation is made to adhere firmly to the wire after it is imbedded, and how all the wires and tin bar are imbedded at one stroke.

FRAME-SPACERS.

You ask for a device that will properly space the frames, and not cost more than ten cents per hive. You will notice that my end-bars embrace this feature, and it does not cost more than two or three cents per hive extra, and I think it answers the purpose as well as any thing that can be devised.

The end-bars are simply sawed out 1⅜ scant, wide. They are then passed over a cutter-head, such as is used in cutting the entrances in sections, leaving a shoulder one inch long in the center of one side of the bar. In nailing the frame, the shoulder, or projection, at one end, is made to project on one side, and that on the other end projects on the opposite side.

The frames being thus made all alike, they may be turned end for end, without affecting the spacing.

When the frames are all pressed together against one side of the hive, there is sufficient play at the other side to allow the first frame to be easily removed.

I can not see but that we have in this frame all the advantages of the closed-end frame, without some of its disadvantages. Any frame is easily loosened by simply moving the top-bar a little sidewise. We should never use wire staples, nor any projecting metal of any kind on frames that are to be extracted from, as the keen-edged honey-knife is sure to strike them, which means half an hour's grinding.

I am having 5000 more of these frames made for this season's use, but the top-bars are $1\frac{3}{16}$ inches wide, instead of ⅞.

Although these top-bars will prevent brace-combs between and over them, I do not know but that we still need perforated zinc to keep the queen in the brood-chamber; still, experience will decide this. OLIVER FOSTER.

Mt. Vernon, Iowa, Feb. 6.

There are some good things in your frame, friend Foster, and perhaps it can not be improved upon; but it is open to some objections. The first is, it would be rather expensive, because of the first cost of the frame, and because of the extra labor of wiring. I am afraid, too, those pieces rabbeted out would get lost, to say nothing of the "more pieces." But perhaps you have reduced the item of wiring to a minimum by the magnetic nailing, etc., you speak of. In regard to the wiring, I am not so sure the six perpendicular, the two diagonal, and the perpendicular tin bar, are necessary. Dadant, in the Revised Langstroth, calls it "excessive wiring;" and until convinced otherwise, I shall agree with him. I am well aware, that many older and wiser heads than mine will disagree. I have been experimenting some on wiring frames, and I find I can draw the horizontal wire, with pliers, more taut than I can the perpendicular. The frame I used had the end-bars pierced—three holes equally spaced. After the wire had been threaded through the six holes, with the pliers I grasped the end of the wire, and drew it until the three horizontals responded like a fiddle-string. In the perpendicular plan there are twelve holes to thread with wire, instead of six. Draw the end of the wire in a similar manner, and the bottom-bar will *bow up;* but even then you can not make all the wires tight. The more holes, the more friction to overcome in drawing tight. Why not use a tin bar? Well, I don't like them. Our bees scarcely ever cover them with comb. They will bevel it on a line parallel to the bar, and there stop. When Drs. Mason and Miller were here we talked the matter over. The big doctor (i. e., the Ohio man) said, "I shouldn't like the horizontal wires." But come to think of it since, he wires his combs in the Given press. If the wire follows the base of the cells, the horizontal wires would not hold the combs sufficiently straight, and hence the doctor would not like them. Dadant & Son use the roller foundation, wired on to three horizontal wires, and that, too, on a larger frame, and they like it. Now, it will be evident that there will be considerable time saved in wiring the frames horizontally. Such frames, too, would cost less. While they may not hold the combs as securely, yet it seems to me it will enough so for the average bee-keeper. It should be remembered, that a good many do not wire at all.

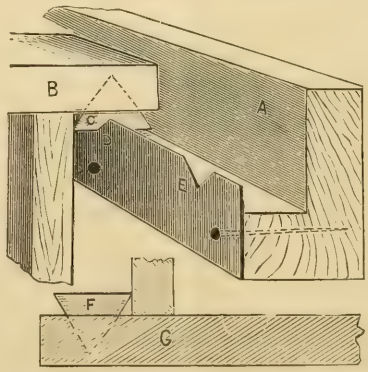
Now, I may be all wrong. All right; I will give up; but I want, first, facts from those who have tried wires horizontally. If they are a failure, let it be so reported. If the combs do not bow out, let us hear that too.

About fixed distances: There are one or two things about it I like. The possibility of loosening the frames by simply pinching the top-bars is good. But it seems to me that in other respects it would be rather inconvenient in handling. Perhaps after trying it I should like it. Our foreman says it is not easy to make, and, of course, it must cost considerably more than the regular frames.

Here is a device that is cheap, has no naughty projections to catch uncapping-knives, and, more than all, it can be adapted to frames in use by notching the rabbets.

NORTON'S FRAME-SPACER.

I take the liberty of sending you a section of a brood-frame, also of an end-piece of a brood-chamber, to show how I keep my frames in their proper places. The frame-rests and points I make of galvanized sheet iron. I have used them for the last two seasons with great satisfaction. I also find, for winter spacing, it is very little trouble to remove the points and replace them in the spring with the



help of pliers. With a sheet-iron saw or circle, on a foot (or other power) mandrel, the slots, or notches, could be quickly cut in the frame rests. I have used only a file, but I think I can fix both frames and rests for a hive in less time than it takes to adjust the frames, after hiving a swarm and moving it to its place. P. L. NORTON.

Lanesboro, Pa., Feb. 4.

Your device, like Phelps' staples, has the elements of cheapness without their objection; i. e., the naughty projections for the uncapping-knife. Ordinary glazier's points, such as can be obtained at any hardware store, will be just the thing. It will not be so easy to notch out the rabbets, though it can be done with a three-cornered file. Wooden rabbets could be notched easily

with a chisel. There is one thing about this, that it can't cost much to try it. The engraving is not strictly correct. The point C should be shoved into the bar B far enough so that B may rest directly on the rabbet D. We have a number of spacing-devices which we will submit to our readers soon. After all have been weighed in the balance by a season's trial we shall know what we want. ERNEST.

In addition to the above, I would say that Ernest and I do not exactly agree in regard to the matter of wiring. I would endorse every word that friend Foster says in favor of wires, and I do not believe that we can afford to dispense with the upright and diagonal wires. For my part, I should hold on to the bars. I do not believe, however, that I should like so much machinery as friend Foster advises, to get rid of the wires over the top-bar. I think I would bore the thick top-bars, and then, if it be desired to get the wires out of sight, draw a line with a marking-gauge, so as to cut through the center of the pierced holes. This will let the wires down into the wood, out of the way. Friend Foster's frame-spacer is old; but if we must space our frames, I think I should like it as well as any other spacer. Friend Norton's device for spacing the top-bars is exceedingly ingenious. If the rabbets are cut by machinery it could be done at little expense. I think that only a test, however, can determine whether we want the arrangement or not.

FASTENING FOUNDATION IN SECTIONS.

THE ARTHUR C. MILLER PERFECTION FOUNDATION-FASTENER.

MY attention has been so frequently called to worthless inventions by unpractical bee-keepers of limited experience, that I have naturally become very skeptical concerning most new devices. For this reason, it is an exceptional pleasure to be able, as in the present instance, to bring before your readers an invention which, I believe, possesses unusual merit.

In 1888, while in attendance at the Rhode Island State Fair, at Providence, my attention was directed to a machine which Mr. Arthur C. Miller had invented for fastening comb foundation in sections. The machine was then in crude form; I may say it was only in process of construction; and as I gave it but casual notice, I was not favorably impressed with it.

In 1889 I was again called to Providence, and was entertained at Mr. Miller's home. I am sure I shall be pardoned if, just here, I diverge from my subject to introduce my friend to your readers. The name of Miller seems to rank well in connection with our pursuit, and I predict its standard will not be lowered as this gentleman becomes better known. If the artist gives us a good cut of Mr. Miller, I am sure it will tell its own story.

Mr. Miller was born in Providence, R. I., in 1862. At the age of fourteen his father died, and, as he said to me, "left me to cut out my own way."

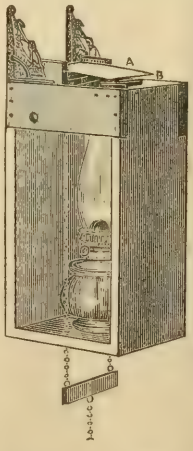
In 1881 he took a position in the oldest and largest savings bank in Rhode Island, the Providence Institute for Savings, where he has remained, being at present paying teller.

He is a descendant of Roger Williams, which may account for his enthusiastic and determined nature. He has an estimable wife and two bright children, a son and a daughter. He has kept bees for the past ten years, having at times as many as fifty stocks. I found at his home nearly all the bee-keeping literature of the day, both American and foreign.

ARTHUR C. MILLER.*

Mr. Miller seems to possess a particular bent for investigation and invention, but at present I shall confine myself to that above mentioned.

While on this latter visit my attention was again called to this new device. I found myself deeply interested in the advance Mr. Miller had made in his progress from his first crude machine to the almost faultless one shown in the illustrations. In explaining it to me Mr. Miller said: "This one crowning point of success in the machine was gained by what I supposed was an error in mechanical construction."



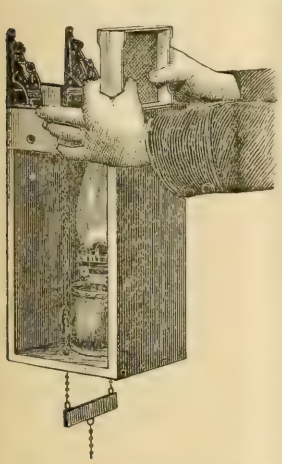
MILLER'S FOUNDATION FASTENER.

Let us first consider the usual methods of fastening foundation in sections, and the conditions necessary for successful operation. Whatever the method employed may be, the wood to which the foundation is attached should be warm and the foundation soft and pliable. If wax is used for fastening the foundation, it must be applied when heated.

Mr. Miller's machine consists of a frame which may be fastened to a board against the front of a bench, or to any perpendicular surface (see Fig. 1). At the top, and a little back from the front, a light metallic plate is arranged, and the frame holding the plate is connected to a lever near the floor, to be operated with the foot. Under this

*Like all half-tone work, this is a natural likeness.—ED.

plate a lamp with a wide flat chimney is so arranged as to heat the plate to a proper temperature.



MANNER OF FASTENING THE FOUNDATION.

At the top, and near the front of the frame, a form is made to hold the section in place. The foundation to be fastened is placed in position as shown in Fig. 2; and by pressing the foot upon the treadle, the heated plate is carried under the base of the foundation, and withdrawn almost instantly, when the operation is complete.

Now notice the perfection of this method. The hot plate warms the box, and melts the wax which adheres to the box, more perfectly than by any other method I have ever known. Skilled fingers will press the foundation slightly at the instant the hot plate melts it.

I am sure any one of experience will at once see how perfectly it will be fastened at both sides, with the same clean wax of which the foundation is made. The hot plate so evens the edge of the foundation that it is equally well fastened at every point. I tested several of the foundations a few moments after being fastened, and I found I could pull it in pieces, but in no instance did it cleave from the box or tear off close to the base. It is apparent, that there is a great advantage in having the foundation fastened in the position in which it is to remain. With the various fasteners in common use, it is necessary to bend the foundation to a right angle to bring it to its proper position.

When Mr. Miller was out of practice he could easily fasten a foundation in a single box in five seconds from the time he took up the section until he put it down completed, and he did twenty in three minutes. I feel confident, that, with intelligent, accurate, and appreciative bee-keepers at least, this is to prove a most valuable invention. I may add, that Mr. Miller has in process of construction a machine of similar design for fastening foundation in brood frames. L. C. ROOT.

Stamford, Ct., Feb. 8.

Friend R., we are exceedingly obliged to you for the pains you take in showing us the picture of friend Miller, and we are also indebted to him; but I think it is no more than fair to mention that the idea of interposing a plate of metal, heated by a lamp, between the wood and the strip of foundation, was given us by a young Canadian, first at the National Bee Convention at Detroit, Dec., 1887, and later at the New York State Convention held in Utica, in January, 1888. At the latter place I paid him $5.00 for a sample machine, and brought it home. Greatly to my surprise, our people could not make it work as rapidly as our ordinary foot-power machines. After spending a good deal of time on it, it was put away on a shelf, where it stands yet. When friend Cutting was here a few days ago, he said the plan was all right, but the machine was not made as it should have been. He has one, he said, of his own make, and it answers the purpose perfectly, and is ahead of any device. The machine made by our Canadian friend was worked by one hand, while the other held the foundation.

MRS. AXTELL REPORTS ANOTHER LARGE CROP OF HONEY.

15,000 LBS. OF COMB HONEY; TAKING OFF SECTIONS, ETC.

IN an article in GLEANINGS of Jan. 1, I mentioned taking off the supers without either the bee-hat or smoker, because the cool night before had driven nearly all the bees down out of the supers. The editor remarks, that, in leaving it on so long, it becomes travel-stained by the bees. In this locality bees gather honey right up to cold nights; and often we get as much from our fall harvests of heart's-ease as we do from the June white clover, and sometimes we have it almost cold enough for frost, and then it will warm up, and the bees go to work again. Heart's-ease is not so easily killed by cold as some other flowers; and if it gets quite warm during the day, even after quite a cool night, they get some honey. They do not soil the combs much within a week or two, or even three, at that time of year, because, when cool, they go down into the brood-nest.

I also remarked, that the little mosquito-bar tents that I tried last season, to get the bees out of the supers, did not work well. The editor thought it was because it was in cold weather, but it was in June that I tried them. I think it was because of the young bees being loth to leave the combs. It was about two hours after setting the tent over that I found they had not all left yet, and they had so spotted the sections that I had to use a sharp knife to scrape the spots out of the wood. One super of sections was badly soiled. I tried the tent once before in the fall, and the bees did not readily go out. The hole at the top was about ¾ of an inch across the top to work out of, and the tent was made as per GLEANINGS.

REPORT.

In the report of our season's work in GLEANINGS, Jan. 1, I made mention that our crop of honey would be 13,000 or 14,000 lbs. We had to guess at some of it. Mr. Axtell is very careful not to guess too high. Since then we have disposed of the rest of it, or so nearly so that we know what we got. It weighs 15,000 lbs. and a little over, all comb honey except about 500 lbs. of extracted and a barrel, not counted, left to feed back in the spring. As we had a very short fall crop, bees did not fill up their brood-combs as they usually do.

FEEDING OUTDOORS PREFERRED TO FEEDING IN THE HIVES.

We equalized the honey last fall so that all would have enough to carry them through until late spring, we think, then we shall feed all out of doors, in one large trough, sorghum molasses, using only enough of the honey to get the bees to take up the molasses. First we have to use about two parts of honey to one of molasses; later on, ⅔ molasses and ⅓ honey, and finally they will take the molasses with

but little or no honey in it. It has this advantage—it causes no robbing, and our own bees take it up so quickly that the neighbors' bees don't get much; and what they do get they will need, and it will do them good. I think many of the ways of feeding in the hives waste more than we lose in feeding out of doors, especially the butter-dish feeders and inverted tin cans, and the loss of heat to the bees, and loss of time in feeding. We have fed that way what we were obliged to feed for several years, and like it better than the other way mentioned. But we don't like to feed bees at all—rather they would keep enough of their own honey.

Roseville, Ill., Mar. 1. MRS. L. C. AXTELL.

Thank you, Mrs. A. When I spoke of leaving the sections on until the weather was cool, I did not think of your fall honey. We are exceedingly glad to hear of your good report last season; but as you did not tell us how many colonies you have, we are at a loss to know what the general average per colony was.—I confess I never thought of getting bees to take sorghum before, by first starting them on some containing part honey; but since you mention it, from what I know of the habits of bees I can readily understand how it would work. Outdoor feeding does certainly come nearer natural stores than any other way; but with us it is very apt to start up quite an excitement, and get the neighbors' bees as well as our own in the habit of hanging around; and our final decision was, as you say, that we preferred to dispense with feeding in any shape or manner, if it could be avoided. In your next, will you tell us how far off you placed the feeding-trough—that is, how far from the hives?

THE BEST BEES FOR BUSINESS.

HINTS ON MARKETING HONEY.

WHILE the pure Italian, the Carniolan, the Cyprian, and the Syrio-Italian, each has its advocates, I maintain that the bee for business is to come exclusively from neither race nor necessarily from any cross of any two races; on the other hand, our coming bees may be the progeny of any queen, from the most æsthetic "four-banded orange-colored Italian" to the lowest plebeian-bred black queen.

Mr. A. says that, by many years of careful breeding, a wise selection of progenitors on both sides, observing every precaution necessary to the highest development of a particular race or cross, he has obtained a generation of workers unequaled for their business qualifications. Mr. B. maintains that, while he believes in a judicious, scientific cultivation, he can not be convinced that any race of bees can be perfected as a whole, every bad quality being entirely eliminated; his observation and experience proving satisfactorily that, in every apiary, there are apt to be non-paying colonies. Do we not observe this same condition in all animal life? However carefully bred, individuals will have their weaknesses. Perfection will not come to the race in its entirety. Weaknesses will continually crop out. The horse, the mule, the cow, all domestic animals, are illustrations of this philosophy.

In my apiary of 60 colonies I have a hybrid colony that is worth any two Italian or Carniolan colonies in the yard, and I have as fine specimens of these races as can be found. The industry of this particular colony is so remarkable that they really seem to gather honey when there is none to be had in the neighborhood—at least they do so when all others are nearly at rest; but when you go to capture their "honeyed sweets," make discretion the better part of valor, and get your armor on!

Up to the summer of 1888 I had a thoroughbred black colony that I would not have exchanged for any Syrio-Italians. I was able to breed *a la* Cook. This queen kept her colony strong in bees for five years, wintering always in a two-story L. hive as they stood on their summer stand, without any winter protection whatever. Last season she was superseded by a queen that I now intend to remove on account of her weaknesses; hence I believe that individual colonies of any race may be better than any race as a whole; that we can not breed out the bad qualities of any particular race and replace them by the good of all other races, any more than can we unite the individual good qualities of all races of men, forming one perfect man.

In conclusion, I will say that, were I to select a few colonies from several apiaries of different races, my judgment should not be biased by race or color, but made wholly upon their "previous servitude."

MARKETING EXTRACTED HONEY.

Making a rough guess, I would say that I have had more extensive experience in selling the above commodity personally to and talking with retail grocers concerning it, then perhaps any other beekeeper. My time not occupied in apiary or schoolroom is spent "on the road," traversing four States in part, talking "my life out," nearly, on honey, with hundreds of grocers from village to city. I give you what I have gleaned below in conclusions, not occupying space in detailing my reasons, unless you care for my views in another article.

1. Extracted honey should *never* be sold in *wooden* packages.

2. The bulk of extracted honey in grocers' hands should be in Root's 60-lb cans with gates.

2. Candied extracted honey is saleable only when the dealer thoroughly understands it, and has the confidence of his customers.

4. Nothing should *ever* be added to destroy its tendency to candy. I can produce knock-down arguments to substantiate this.

5. Honey liable to candy should not be left with a grocer who doesn't understand this, can not explain it, or knows not how to remedy it.

6. Only the very best honey that will not candy (isn't granulate better nomenclature?) should be put into sealed packages.

7. The great bulk of our honey *must* be sold with "no charge for package," directly or indirectly.

HONEY FOR DYSPEPTICS.

I have just noticed what Chas. Dadant says on page 130: "Dyspeptics can not eat honey without increasing their distress." I have customers who *take* it for dyspepsia, and I am in the habit of saying of well-ripened thick honey, "If this makes you sick, I'll pay the doctor's bill," recommending it for weak stomachs. I myself have a bad case of indigestion, and I eat honey in season three times a day, and lick my fingers between times.

St. Albans, W. Va., Mar. 3. J. C. CAPEHART.

Friend C., I think I pretty nearly agree

with you in regard to bees for business. I once had a hybrid colony that built comb and stored honey right through a severe drouth when the other bees got scarcely an ounce, and hardly stirred a peg. The bees from this hybrid colony were flying every day, as fast as they could put out and come back; but when we went to their hive, they fought like tigers. Finally I got a theory into my head, that, the more honey I took away from them, the harder they worked; and in order to demonstrate this to my satisfaction, what do you think I did? Why, it was like the last straw that broke the camel's back. I crowded them so close that I found them one day all starved to death. I had neglected to look at them for some little time, thinking they would find enough to live on any way. I always feel bad whenever I think of it. I consoled myself at the time by thinking it was not very much matter, as they were so pesky ugly. With the outlook now before us, however, and the great things we are expecting to accomplish by bee-escapes, etc., we might put such a strain of bees away off in the woods somewhere, and then take the honey away by lifting off finished cases, without a bee to bother or hinder.—I hope it is a notion, that I can not eat honey of late years. If so, I am going to try hard to get over it.

CAGING QUEENS, ETC.

WRITING FOR PRINT OR FOR THE WASTE-BASKET.

THE following private note accompanying an article came to hand; but as it contains one or two spicy hints, we take the liberty of making it a sort of prelude to our friend's article.

Friend Root:—Don't think that I shall get mad if I don't see this little effort in print, as some have done, for I have learned better. Some eight or ten years ago I used to conceive some ideas about how bees and "fixin's" ought to be, and would imagine how this great throbbing world was standing still, waiting till *I* could and would let my light shine. I remember of sending you some of these (to me) master productions and you cut off all that amounted to any thing to me, and threw it into the waste-basket, and told me, as a friend (in need), that your grandfather or some one else had abandoned the same idea away back in the fifties. You see, this is "awful convincin'" to an aspiring writer, that "new ideas" are scarce. M. A. GILL.

Viola, Wis., Feb. 20.

The following is the article, and a valuable one it is too:

CAGING QUEENS TO PREVENT SWARMING AND EXCESSIVE BROOD-REARING WHEN NOT DESIRED.

While thinking upon some of the important questions that have been discussed in GLEANINGS in the past few months, I thought a few observations of my own might not come amiss. I am glad to see the subject of caging queens during the honey-flow receive some attention, for I consider it one of the sources which are to relieve us of so much increase at a time when we wish to control it at all hazards. I mean bee-keepers north of the 44th parallel, who have struggled, so to speak, to get their bees in working shape for basswood, and know that what honey they do get must come in 15 days. Yes, we work the whole year, as a rule, for what we can get the first 20 days of July. If this be the case, it is a self-evident fact that we don't want any swarming during this time; and more, we don't want the combs occupied with brood in the top story; and for my part I don't allow it in *either* story from the 10th to the 15th of June, until basswood bloom is half passed, or, say, 10 days after basswood has opened. If my queens are caged I liberate them at this time; and if I have taken the queen away (and killed her if she does not come up to my standard, or given her to a nucleus, if she be a good one), I gauge that time to this event, and aim to have her laying from four to six days before basswood closes. You will say, no doubt, that this would be an extravagant loss of young bees. But I tell you, while we are working for extracted honey during basswood, with a full supply of combs, that we have no use for any thing but honey-gatherers, and no use for any thing but young bees for the subsequent month, as that is here our dry month for honey, and September, when we get our next flow; this gives us ample time to produce another crop of workers.

I wish to mention here two queens that were caged on the 12th of July, and missed by some help I had on the 18th (when I ordered them liberated). These were found caged on the 18th of November. Of course, all the bees were dead, and so was one queen; but the other was as lively as a cricket, and had two frames of brood 10 days later, when I put them into the cellar. The colony is still alive, but of course weak; but quite a goodly number of the old hybrid colony are still there, and, of course, they are eight months old. How is that for a hardy strain?

A VALUABLE SUGGESTION ON THICK TOP-BARS.

In regard to thick top-bars, I will say that I made 30 hives, six years ago, with top bars ⅞ deep by one inch wide, and they were not spaced properly, being only 8 frames in 12 inches; but the space above was ⅜ of an inch, and it prevented brace-combs to such an extent that inexperienced help spoke of it. I noticed another prominent feature that I have not heard mentioned in any of the comments; namely, the bees would build their combs clear down, and fasten them to the bottom-bar in the top-story, and that with only a small starter of foundation. This, you see, would leave the space between the frames intact, while in hives with ⅞ top-bars, no more crowded than the others, the space between the top and bottom set of frames would be built full, and the bee-space left between the combs and bottom-bars of the top-story frames. This last feature I consider the most valuable of all; for if it would prevent so much under such circumstances, would it not be infallible with a proper adjustment of frames and spaces? I have noticed, too, that, where one or two of these frames are mixed through my other hives, that the effect is visible.

Since I wrote from Tennessee about this section of Wisconsin, its large basswood forests, its sure crop, etc., I have received many scorings from local bee-men, and some that are not so local. But, I ask, what harm can come to us if this country is worked to its full capacity by specialists who would not, from self-interest, overstock the territory? What harm would it do if all our honey were gath-

ered, and a honey market established right here? For my part, I don't want the "earth and all there is therein," and I would rather see it gathered and saved than wasted on the desert air. M. A. GILL.

Viola, Wis., Feb. 20.

Friend Gill, you have indeed suggested some very valuable points; namely, that caging queens not only prevents swarming, but it prevents excessive breeding just when we do not want it. We little realize, many of us, how much is consumed in brood-rearing; and no doubt that, with a large force of bees, all of them capable of bringing in honey, we might see considerable increase in the amount of honey over that where the queen is left at large in the hive. We trust our readers will give this caging process a thorough test during the coming season. Who knows but that it may be a solution of the problem how to prevent swarming? It will require skill to manage it rightly.—The point you make, that thick top-bars cause the comb to be built clear to the bottom-bar, is a valuable one indeed, if true. I know that the objection has been made, that a heavy bar takes up valuable comb space. If what you say will prove true in the hands of other bee-keepers, thick top-bars do not interfere with the amount of comb to be built, but the contrary.—Friend G., do not be afraid of the waste-basket. You know there is something in getting up a name. E. R.

DOUBLE-TOP-BAR FRAME.

SOMETHING ELSE TO DO AWAY WITH BRACE-COMBS.

A LITTLE over ten years ago I took the "bee-fever," and I took it "bad." I did not own a bee at the time, and was a lad of only 18 years. What did I do? Go and buy a lot of bees? No. I went to reading and studying up the matter, and I said I would begin at least part way up the ladder; that is, I would not begin and spend my time in hopeless blunders. I therefore studied for a year, then purchased a hive of bees, only to find that I was on the first round of the ladder after all, for all my fine theories fell through when I came to handle them. But I will not take up space to give you the ups and downs of those ten years. My father being a carpenter I had access to all the tools necessary for hive-making. I therefore got me up a hive combining the good points of all (at that time), as nearly as I could. This hive took the standard box, carried two half-supers on top; the brood-frames were of just the right depth to fill these two half-supers when I wished to run for extracted honey, so it made a very convenient hive; but in time I found there was something wrong about my pet hive. 1. I had, in the fall, to go through all of my colonies, and cut central holes through the combs, in order that the bees might find passage from one side of the hive to the other, without being compelled to go around the outside end of the frame. 2. In taking off my supers I was vexed at finding many of them stuck down to the top of the brood-frames by brace-combs. These two objections I was bound to overcome, and at last, two years ago, I remodeled my brood-frame so that it entirely overcame these two bad features.

As the subject of thick top-bars is now before the bee-keepers of the world, I think it is time I sent in my testimony through GLEANINGS. My first object was to get a permanent bee-passage through the frame—one they would not close up as they did in case where I cut holes through the combs; and, recognizing the fact that heat rises, and that this passage must be in the warmest part of the hive, I simply put in an extra top-bar, just under the original top-bar, with just a bee-space between the two. This false top-bar just fitted the inside of the frame, and was held in place by nailing through at each end, and in the center a block one inch square (the thickness of the bee-space) is slipped in, and a wire nail passes down through both top-bars and this block, which holds the two as solid as if they were one piece. Width of top-bar is 1⅛ in.; depth,

AMES' DOUBLE-TOP-BAR FRAME.

including bee-space, 1 inch. As I have said, I have used this frame two years, and in that time I have never had a brace-comb built on top, nor have I had a loss of a single colony of bees wintered on these frames; and, better still, I have never had a queen get above when put on these frames. I consider them far ahead of a solid thick top-bar.

If this is of any use to you or to the bee-keepers of the world, you are welcome to it.

Hudson, Mich., Jan. 6. IRVING H. AMES.

Many thanks, friend Ames. It is quite possible that you have struck on to a good thing. If a double top-bar, such as you describe, will do away with burr-combs as effectually as thick bars, then surely the former will have the preference. It will be lighter, and answer as a Hill's device in winter—that is, giving the bees a winter passageway, and it would be just as cheap. Moreover, every bee-keeper, no matter how many combs he has, can put it to a practical test by cutting out, say, one inch of comb immediate to and parallel with the top-bar, and inserting an extra bar, as shown in the engraving above. Where combs have perpendicular wires it might interfere, but there will be enough combs without such wires, so that every one can prove for himself whether it will be a success. In my hand is such a frame as you describe. It came in the mails, and I do not know from whom it came. If I can judge correctly from the propolis accumulations, it has been in use for several years, for it looks like an old "residenter." I am not surprised that there should be no burr-combs above the top-bar proper; but there are actually *no* burr-combs built in the space between the upper and lower bar. As this double-top-bar frame contains the principle of the slat honey-boards, in conjunction with ordinary brood-frames without the break-joint, I should naturally suppose that the intervening space would be filled with burr-comb; but in the sample sent, none

such have been built. In the sample which I have, the bars are ¼ inch thick, and ⅞ inch wide. In your letter, friend Ames, you say the width is 1⅛. Did you ever try only ⅞, spaced 1⅜? Some unknown friend, whose name I do not now recall, wrote some time ago that an additional top-bar spaced ¼ inch below the top-bar proper, in ordinary frames, would prevent the building of burr-combs. At any rate, another friend, Mr. M. M. Baldridge, has written in this wise:

THICK TOP-BARS.

NEW PLAN FOR MAKING THEM; SHALLOW FRAMES VS. DEEP FRAMES; WIRED FRAMES; STARTERS VS. FULL SHEETS IN SECTIONS.

Friend Root:—I have read with interest what you and others have to say in GLEANINGS on the subject of thick and wide top-bars to brood-frames as a preventive of burr-combs, and a discourager of the queen's ascension to the surplus chamber. I think it will pay you and others to experiment extensively in the direction of thick top-bars to brood-frames, because, if you gain nothing by so doing in the directions referred to, I think you will sooner or later discover that a *shallow* frame in your Dovetailed hive will give you better results than a deep one. If you make the top-bars an inch thick, more or less, it will certainly reduce the capacity of your brood-frames, which is on the road to shallow frames, and sooner or later you will get these—say, to one not more than 7 inches deep, inside measure. This is the depth I use, even in the standard L. hives, which gives me a two-inch space under the brood-frames. Now, you may think it will not do to have so much space under the frames in the brood-chamber because the bees will fill it with comb. But this is not my experience, for I seldom find any comb in this space when the bees are given ample accommodations in the surplus chamber. Besides, I find this two-inch space a splendid arrangement in the wintering of bees, whether outdoors or in repositories. I wish both you and your readers would try a few hives the coming season, with shallow frames, such as I use, and report. One advantage is, in case you accept my suggestion, you can give shallow frames a thorough trial without any special expense, simply by using new frames of the proper depth, or by reducing those already in use.

But my main purpose at this time is to call your attention to my plan of making thick top-bars to brood-frames, and at the same time to secure the advantages of the slatted honey-board, and the twin bee-space that the board secures when made properly, and yet dispense entirely with the said honey-board. It is simply this: Make the top bar to the brood-frames three-fourths or seven-eighths of an inch thick by either of the following plans: 1. By using two flat strips, each $\frac{5}{16}$ thick, and space them ¼ inch apart the entire length—the top strip to be long enough to hang upon the rabbets, and the bottom one the exact length of the inside of the brood-frames. The ¼-inch space between should be exact, and may be secured by the use of three square blocks, each ¼ inch thick, and the same width as the top and bottom strip. Use one at each end, and the third block in the center, and secure them in place with wire nails. Or, second, the top piece may be got out ¾ or ⅞ thick, perpendicularly, and the ¼-inch slot may be secured by means of circular saws.

Now, friend Root, do you not see that the foregoing secures a thick top-bar to the frames, and the twin bee-space at the same time, when a bee-space is used above the brood-frames? And yet we have got rid of the slatted honey-board! Besides this, we have secured a brood-frame whose top-bar *will not sag*, when full of brood or honey, and that will do away with tin supports and diagonal wires. I find in practice that six perpendicular wires simply, No. 30, are ample in standard L. or the shallow frames; and I would not have more, even if I could just as well as not. I can wire 300 brood-frames, 7¾ in. deep, outside measure, the depth I use, with a 1-lb. spool of No. 30 wire, and never have a sheet of foundation give way, even when large swarms are hived in hot weather upon a full set. Now, what more do we want in that direction?

St. Charles, Ill., Jan. 14. M. M. BALDRIDGE.

I am glad to get your testimony, friend B., on this very interesting question. I am not so sure about the shallow frames. Perhaps there will be an advantage in making them only seven inches deep. If reversing should ever prove to be desirable, a double top-bar and a double bottom-bar would leave an ordinary L. frame only about 7 inches deep. The very great majority of bee-keepers prefer the standard L. frame; and even if there were a slight advantage in making it shallower they would not change, for the reason that they would not be in line. While we are on reversing, has it not occurred to you that we could make a reversible frame on Heddon's plan, with double top-bar, very easily? Instead of making the two bars come in contact, as does Mr. Heddon, make them come ¼ inch apart. The frame could be easily reversed, and, whichever side up, there would be always the double top-bar. As I have called for votes on the thick top-bar, I should also like to have short testimonies from those who may possibly have tried the double top-bar. E. R.

I will add, that using an L. frame two inches shallower, especially for experiment, will not make much trouble in an apiary of L. frames. If the shallow frame were put between two ordinary frames, however, bees might build combs under the bottom-bar; and if it should by accident be placed in an upper story, it would, without question, make trouble, because the bees will fill the space all up solid with honey. Our readers will remember that this matter of a two-inch space under the bottom-bars was given on page 129 by friend Murray.

NO BURR-COMBS.

In regard to the thick top-bars, let me say: I have never used any other than ⅞ x ⅞, and had very little trouble with burr or brace comb between frames, and none at all above. Since I have seen the slatted break-joint honey-board, I make my top-bars one inch wide and ⅞ deep, and find this still better. Forty years ago in Germany, and later in America, before frames were known, we used sectional hives 12 x 12 in. inside, and from 3 to 7 in. deep; and even in them we made frames with ⅞ x ⅞ top-bars. I was astonished when I first saw your ⅞ inch top-bars. L. HAMMERSCHMIDT.

Amana, Ia., Feb. 22.

WILL BUCKWHEAT CROSS?

PROF. COOK GIVES US HIS OPINION IN THE MATTER.

YOU ask if Japanese buckwheat will cross with the other varieties, if grown side by side. Surely there is every reason to expect such a result. The fact that the fertilization is not close, that the stamens and pistils do not mature at the same time, and all plant analogy, would argue that such crossing is not only possible but exceedingly probable. I should not wish to have other buckwheat grown close beside my Japanese; for in such case I should surely expect deterioration. I know that nature is very curious in her behavior, often greeting us with the most unexpected surprises, so we should never be too certain of any special thing till we have actually demonstrated it, no matter how probable it may seem. I have just asked Dr. Beal if the above view is scientific orthodoxy. He replied quite emphatically in the affirmative. He said he should certainly expect buckwheat to cross, though actual experiment alone would make him absolutely positive. We can not reason from the cereals, or common grains, like wheat and oats, to buckwheat. The former are closely fertilized, and crossing is difficult and rare, while the latter is dependent upon insects for full fertilization; and we may thus conclude that close fertilization is not good for the plants, is not conducive to prolificness, and so is not the rule. The practical conclusion is, that we should keep varieties of buckwheat separated, or else we shall mix them, and lose the value which we possess in any superior variety. We will try to demonstrate this point the coming season. A. J. COOK.

Agricultural College, Mich., Feb. 25.

We referred the matter to Prof. Green also, who replies:

Mr. Root:—I am unable to give you any information concerning the crossing or mixing of buckwheat, nor can I find any one who knows any thing about it. I will make further inquiries, and also undertake some experiments in that line, if nothing is learned from any one else. I judge from what Joseph Harris says in his catalogue, p. 13, that he thinks the varieties will cross; but he may have no positive knowledge on the subject. We had two varieties (one being Japanese) growing side by side, but no seed was saved. W. J. GREEN.

Columbus, O., Feb. 25.

Well, now, friends, you may be right, but I can not understand how it is that buckwheat will mix, and all these years have passed and we have never found it out. Silverhull and the common have been grown side by side for perhaps 15 years, but I have never seen any thing that I should call a cross between the two. The difference between the European silverhull (a very small grain, light in color) and the Japanese (a very large grain, and color just opposite the other) is still greater; and although we have had both for four or five years, none has ever reached us looking any thing like a cross between the two. We have also had several reports where the two were grown side by side in the same field; but in harvesting the crop, nobody spoke of seeing any thing that looked like a cross. We are willing, however, to await careful tests.

EXTRACTORS

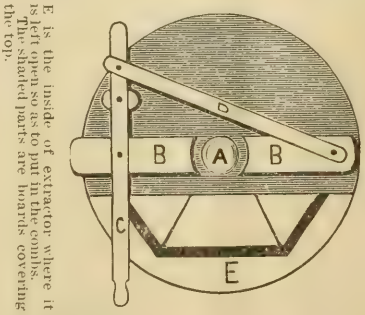
A FOUR-FRAME AHEAD OF A TWO-FRAME BY 3 TO 1.

I AM greatly interested in J. F. McIntyre's reversible extractor, and I should like very much to see it work. I am a "doubting Thomas" in regard to reversible machines, simply because I have seen so many that were not practical. Still, I shall be very glad to learn of a good reversible extractor. I like the principle of friend McIntyre's machine, however.

I used a two-frame Novice extractor for over 15 years in Wisconsin. I was satisfied with it, and I really thought it far better than any four-frame extractor made, and I could take the honey from the hives, and return the empty combs, and extract 700 to 800 lbs. a day. But since I came to California two years ago I have been convinced (against my will) that it pays to use a four-frame extractor.

In Wisconsin I was single and had to do the extracting alone; but now in California I have a wife, and she helps me extract. We can bring in the honey, uncap, extract, and return the empty combs, and extract *a ton* of honey in one day (10 hours), making a difference of nearly three to one in favor of the four-frame machine. The above is no guesswork but an actual test case.

Now, a four-frame extractor is too heavy to be stopped quickly with ease and safety by the gearing, so we can check the motion by the gearing with the right hand, and with the left hand apply the brake.



ARRANGEMENT OF BRAKE, FOR STOPPING A SIX-FRAME EXTRACTOR.

With the above brake, my wife handles a four-frame extractor with speed and ease, and she weighs only 99 lbs. too. REESE POWELL.

San Bernardino, Cal., Dec. 21, 1889.

Friend R., no doubt your four-frame or six-frame extractor is an advantage; yet your reasoning, if I am correct, is not quite clear. Had you and *your good wife* used a two-frame extractor in *California*, we could tell something about it. You see, that little woman who "weighs only 99 lbs." *may be* a good deal smarter than you are. I hope you will not take offense at this suggestion; and I think I may say, on general principles, that any man, almost, can get more than twice as much honey with the help of his wife as he would if he worked all alone. With these large extractors I feel pretty certain that some sort of brake is needed. When it gets such a great weight of machinery under motion, it takes time, necessarily, to stop it, unless you have something similar to the mechanism shown above.

BEE-KEEPING IN WISCONSIN.

A SUCCESSFUL AND AN OLD FOGY BEE-KEEPER.

As a great deal of attention has been paid to the basswood regions of late, and especially those lying in Southwestern Wisconsin, allow me to place before the readers of GLEANINGS a contrast between two bee keepers (at least one was), whom the writer visited while spending his vacation in that region last summer, just after Uncle Amos had departed from there with his Kodak. Most of GLEANINGS readers remember, I presume, the article from the pen of Mr. M. A. Gill, page 671, 1888, concerning his large yields of honey from basswood in Southwest Wisconsin, so it is not necessary for me to introduce him to you here.

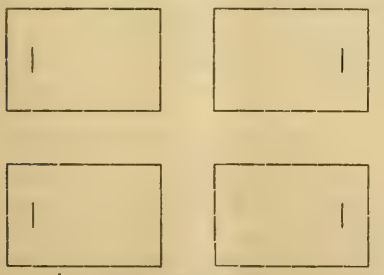
In the summer of 1888 Mr. Gill and his family resided in the South, he having then come to the conclusion that this was the oft-spoken-of Utopia; but as experience is a good teacher, he has changed his opinion of this fairy-land, the South, and has come to stay again in the valley of the Kickapoo, surrounded by its peculiar sceneries and immense basswood forests.

In the spring of 1889 Mr. Gill started with 62 colonies in Simplicity hives, running 51 for extracted and 11 for comb. When I was there, the last week in August, he had taken 6200 pounds extracted and 1000 pounds comb honey—basswood, to be sure, and for quality it was A 1 (not A. I.).

On the 18th of June Mr. Gill started 50 two-frame nuclei, and these worked with such a vigor that, within two months, they had cast 19 swarms, besides two swarms that had absconded to the woods. From these nuclei he had taken 200 pounds comb and 250 pounds extracted, before the close of August, with good prospects for more. Well, how is that for basswood?

But basswood is not the only resource of this region, for Mr. Gill showed me plenty of aster, boneset, and other honey-producing flowers. He informed me that the grounds in his vicinity were completely carpeted with white clover; but as it was very rainy and cold at that time, the bees and Mr. Gill did not profit any thereby.

Mr. G. arranges his hives in groups of four, with the entrances of two of these facing east, we will say, and the two opposite ones west, with a distance between the hives sufficient for a walk. Thus:



M. A. GILL'S METHOD OF ARRANGING HIVES AND ENTRANCES.

The heavy dash lines indicate the entrances.

Let me state that both Mr. and Mrs. Gill are very pleasant people, and Mr. Gill is known almost everywhere in this district for his large crops of honey; but I think that it is not only the honey resources of his locality that account for this, but the love he seems to have for his vocation. Carefulness, cleanliness, and business principles, were among the things I noticed that he paid strict attention to.

Now, if you please, allow me to draw your attention to the would-be bee-keeper, whose trade is that of a blacksmith; but he tries (?) to keep an apiary of about 100 colonies as a "side-show." Jones, we will say his name is, resides in Wisconsin, and he seems to enjoy very much practicing fogyism and telling lies! He uses the American hive, and, to put a second story on, the poor fellow has to go to the trouble of calking and plastering! His style of doing things, and the way he procures his honey—that is, what few pounds he does get, is enough to make any one *sick*. Cleanliness and order are objects of little or no value to him. How *can* a man be successful who throws his empty sections, frames, and other paraphernalia belonging to the bee-keeper (all covered with propolis), here, there, and everywhere, but never in its proper place? He also uses old barrels, that are fit only to make kindling-wood of, to fill with honey extracted from the brood-chambers.

Jones has the reputation, however, of being a good but slow worker at the anvil, and is also known for his big lies. I trust that no one of GLEANINGS readers will envy his position, but rather pity him, for he is getting to be old, and is evidently very ignorant.

May it be my sincere wish that every one who reads this will profit by the contrast between these two bee-keepers which has been pictured to you by a— CHICAGO BOY.

My good friend, we are very much obliged indeed for the kind words you speak in regard to our old friend and subscriber M. A. Gill; but I confess I can not help feeling a little bit pained in regard to your very severe strictures on the blacksmith bee-keeper. Of course, I have no idea as to who he is, and I really hope that the whole State of Wisconsin does not contain even one such as you describe. In summing up the evil belonging to such a case as you mention, please let us be sure that we do not fall into another error in cultivating even just the least bit of that spirit that "rejoices in iniquity."

INCREASE BY DIVIDING INSTEAD OF BY NATURAL SWARMING.

A CALIFORNIA BEE-KEEPER OF 200 COLONIES CONSIDERS IT MORE PROFITABLE.

A SEASON of greater rainfall than the present, up to date, has never been known in California. As an abundance of rain properly distributed seems to be about all that is necessary to insure a good honey-crop, we bee-men feel rather jubilant. We are not out of the woods yet, however, as a drouth from now on would spoil our prospects; but this is very improbable.

The bees are now beginning to raise brood, and from now on they should be worked with constantly, urging them to do their best in this respect. My plan to do this is, first, to see that all have an abundance of honey. I then go through them once a week, if the weather permits, uncapping a little honey and spreading the brood. In this way many will be ready to divide by the 15th of March, or as soon as drones are flying. My preferred method of dividing is to make nuclei; and when they have lay-

ing queens, build them up with combs of hatching brood. As it is desirable to get early as many laying queens as increase is wanted, I always make enough more nuclei so that, after the usual proportion of queens is lost, there will be as many as I wish increase. For instance, I have about 250 stocks. I hope to have 400 by the first of May, or an increase of 150. To insure getting that number of laying queens I make about 180 nuclei. The nuclei which fail in getting queens are then united to some other. By the forcing process through which the bees have been put, it is easy to select the poor queens. These I kill, and the stock is divided up into as many nuclei as its strength permits of. It is from this source that most of my nuclei are made. Of course, I always give them queen-cells which have been made in strong colonies. I shall raise my cells this year *a la* Doolittle. The first principle in dividing is, never to so weaken a stock having a prolific queen as to restrict the laying of that queen. By observing this rule, all stocks which had good queens in the spring will be overflowing with bees at the advent of the honey-season, May 15, while the nuclei made in March and fore part of April will be ready for business by June 1st to 10th, and will do good work from then on to the close of the honey season, July 10th, generally. According to my experience I make about one-fourth more honey by this way of managing than when bees are left to increase at their own sweet will.

I have a suggestion to offer in answer to the question, "What shall the bee-man do to occupy his time during the winter?" If you live in California or the Gulf States, where it is imperative to be with one's bees only from March to August, why not start an apiary in Cuba, and run bees down there from November to March? There being no severe winters to contend with in either country, to insure finding the bees on coming back it is only necessary to have plenty of honey in the hives. The man who tries this must not be handicapped with wife and bairns, as traveling expenses would swamp him. WM. G. HEWES.

Newhall, Cal., Jan. 28.

RETAILING HONEY.

HOW TO MAKE IT GO LIKE HOT CAKES.

I WILL give my way of selling extracted honey. It may do some one some good who lives in towns large enough to sell honey. Knowing that Jackson, a town of 29,000 inhabitants, has never consumed more than a very little extracted honey, for the reason it never has been put on the market in the right shape, and but a very little in any shape, I made up my mind to see what I could do in the line of selling. Having but little extracted honey of my own I thought I could help some other bee-keeper out with his honey. I put a little advertisement into the Exchange Department of GLEANINGS, to exchange supplies for extracted honey. You may be sure this brought chances enough to get honey. As soon as any honey came I commenced to buy two-quart pails. I got them for 65 cts. per dozen. I filled them, and started out. Well, you would be surprised to see them go. I found I could sell two to three dozen of these pails in two or three hours. I live on my farm four miles from the city. After doing my chores I would reach the city about 10 A. M.; then I would get sold out by 1 P. M. Then I would get more pails, and start home to fill them. I put 4½ lbs. of honey into the pail, which weighed ½ lb. This makes 5 lbs. I sell pail and honey for 50 cts. In this way I shall sell 8000 lbs. this winter in Jackson, and I haven't spent half the time in selling honey. This educates the people to eat honey. Some families bought four or five pails. When I am in town the people know me as the "honey-man," and run after me for more. The honey cost me about 8 cts. per lb. Any of you living in a city can dispose of your crop, and sell some for your brother bee-keepers this way. Always use a large label, and be sure your honey is pure. Then it will go like hot cakes.

Jackson, Mich., Feb. 10. W. D. SOPER.

I am glad to hear of the success you have made, friend S.; and judging from the quantity of tin pails we are selling, I think it quite likely that in many towns, especially where honey has been sold in that way, there is a great opening to the enterprising bee-keeper.

COMPARATIVE RESULTS WITH THICK AND THIN TOP-BARS.

ARE BURR-COMBS THE RESULT OF IMPROPER TOP-BARS?

I WISH to speak in favor of thick top-bars. I am at present using both. I started bee-keeping, about eight years ago, with ⅞-inch square top-bars (with one lower corner sawed nearly out to facilitate fastening foundation); but having no real reason for using them made that way, I began making them shallow (two years ago), more, I suppose, to be like other progressive bee-keepers. Since I have them both in my bee-yard I could not account for brace-combs in some of my hives and *not in others*. If I put on a super with sections it was fastened tight with burr-combs; if I put on a honey-board under the super, the honey-board would be fastened just the same; but underneath the super it would be fairly free from burr-combs. As regards the hives that contained the thick top-bars, I can not recall one instance where burr-combs were troublesome when a proper bee-space was maintained, and I have used them with and without honey-boards. I think, also, that ⅞ or ½ inch top-bars are not stiff enough without a comb-guide for heavy combs of brood and honey. Even if they bend but a trifle it affects the shape of the cells and injures the brood. The bees notice this sagging where we would not, and immediately set to work to strengthen the combs with brace and burr-combs.

BROOD-FRAMES FLUSH WITH THE TOP OF THE HIVE.

I see that you find fault with brood-frames that come up flush with the top of the hive, on account of killing bees, etc. Why not have the bee-space on the under side of the cover formed by strips ⅞ inch square? I am using covers so made, and find I am not liable to mash half as many bees as when the bee-space is on the top of the hive, with the cover resting on a ⅞-inch (instead of a ⅞-inch surface) edge of hive. Then, again, the quilt can be more neatly and quickly applied when the whole surface is level. Again, if the frames come flush with the top of the hive, we must have the bee-space on the bottom of the super admitting of the T tins being inverted; but I have for the last three years used

tins of this shape ⊓, as section-rests. You will find them strong enough, and the sections can be placed close together at the bottom, admitting of a more successful use of double-slotted sections by not having the cracks between sections filled with propolis, and your sections standing square.

When T tins are nailed to the bottoms of the supers they have to be very accurately spaced. Not so with the ⊓ shaped tin. They will also work just as well, if not better, on your bent staples, for holding section-rests. They can be placed on the staples without shaking off when moved about. I would suggest that Dr. Miller try a few in his supers. W. A. CHRYSLER.

Chatham, Ont., Can., Feb. 3.

We could make the cover bee-spaced as you mention; but for various reasons it is cheaper and better to make the bottom-board bee-spaced. The majority of bee-keepers would be against you on this point. Thanks for your information on the matter of thick top-bars.

WIDTH OF TOP-BARS.

MR. HEDDON ARGUES FOR NARROW TOP-BARS AND HONEY-BOARDS.

BROTHER Oliver Foster's article on page 126, and some of your foot-notes, call me out again. In response to Bro. Foster's question in the closing paragraph of his article, I think I stated in my former article, in connection with my declaration, which I now wish to repeat, that I would never under any circumstances make a top-bar more than ⅞ wide; that if I found any great advantage, after thorough trial, in placing top-bars just five-sixteenths of an inch apart, I would do so with the ⅞ bars by putting more frames in the same space. Well, I am impatiently waiting for time and experience to convince all you fellows that just all they will do with the wide and deep top-bars is to find out that they will *lessen* the amount of brace-combs built above them; that they are a good thing when made deep, but not *wider* than ⅞. The deepness is the grand thing, as I wrote years ago. It makes the bars stiff, preventing sagging. It is in no way objectionable in a Langstroth hive, and, of course, it is worth something to lessen the quantity of brace-combs above them; but the great point of getting rid of brace-combs below the surplus receptacles can never be wholly accomplished in that way. The break-joint honey-board does it, and, after this little excitement is over, the break-joint honey-board will stay right where it is, doing that excellent service that nothing else can do.

In another of your foot-notes, on page 129, where you say that you do not remember any one suggesting raising all the frames in order to secure the complete building of the comb clear to the bottom-bar, I will tell you that, whether any one has written about it or not, years ago Dr. Southard, of Kalamazoo, made comprehensive experiments, and reported the whole to me at the time. After all, it is more costly, and not nearly as complete a method of accomplishing the result as that of inverting.

Ernest desires to know how I am going to use the thick top-bars with my new hive, with such shallow combs. Why, it would be very easy to make the cases enough deeper to give me the same comb depth that I now have, and make the bars thick; but I shall never do this. With those shallow cases, worked upon the alternating plan, the board is kept so closely to the bars, both top and bottom, that very few brace-combs are built. Another thing: I make the bars (which are just alike, top and bottom, as all are invertible) not only less than ⅜ thick, but $\frac{1}{16}$ less than ⅞ wide, so as to have them just the width of the worker comb. This allows us to readily see right through every case, estimate honey, brood, and cut out queen-cells without the necessity of moving the frames. When you once come to use the hives in large quantities, you would find that these little alterations so materially aid the new system of management that they are worth very much more than any and all results which can be gained from deep top-bars. We have been all through the practice of both, on a large scale, year after year, and we are very sure that we know just how the matter is. If I thought I did not know, I should begin to wonder if I am sure of any thing, even my own existence.

It is a splendid thing to have journals in which we can agitate these questions, cause our brother bee-keepers to think as they work, experiment as they go, all of which will certainly lead to great improvements, and we shall all finally know what is best. JAMES HEDDON.

Dowagiac, Mich., Feb., 1890.

Yes, friend H., we are impatiently waiting for time and experience to convince us fellows. I wish the bees wouldn't be so long about telling, or, rather, letting us find out about all these good things. But, say; if you space ⅞-inch bars only $\frac{5}{16}$ inch apart, won't the bees object? Cheshire, and he is backed up by Dr. C. C. Miller, says the *average* width of comb is $\frac{15}{16}$ of an inch thick. The surface of the comb, on the average, will be only $\frac{4}{16}$ inch apart. No, I would rather have top-bars an inch or $1\frac{1}{16}$, spaced $\frac{5}{16}$ apart. The comb surface will then be respectively $\frac{6}{16}$ and $\frac{7}{16}$ inch apart. These distances are about right; but $\frac{4}{16}$ is a little close, is it not? Now, I am not saying that you can not space as close as this, but am only asking for information. With regard to your shallow brood-chambers, if you make them deeper to accommodate the deeper frame, you will have confusion, and your customers in ordering will get the two mixed.—Yes, sir, bee-journals are doing a splendid thing in agitating these new things, and then afterward collecting and sifting the facts for their readers. E. R.

COLONIES OUTDOORS.

A POSSIBLE CAUSE OF EARLY FLYING IN SPRING.

Friend Root:—The present winter has led me to consider a question which, to me at least, is new. My bees wintered in clamps outside are often, I should judge, on the verge of flying out, yet remain in the hive. Last week I had occasion to render a quantity of cappings and old comb, and it led me to wonder whether the smell of heated honey and wax would, with the mildness of the weather, cause the bees to be restless, and perhaps injure them. Is it not probable that, when almost warm enough for the bees to fly out, the smell of melting wax and warm honey will disturb the bees in the hive? If this is the case we should be very cautious in the matter. Perhaps some of our bee-keepers can give us conclusive evidence here.

COVERS, FLAT OR DEEP.

I should just like to have a few words upon Question 153. I can not see how, all in all, any one can prefer a flat cover with only a bee-space above the bars. Some of the arguments in favor of a large cover are, that they act as a break against the sun in summer, and assist to keep the bees cool. I would even use a chaff cushion all summer for this purpose, and I know of some very successful bee-keepers who are doing this.

Again, in spring, with a flat cover you have no chance to protect the bees from cold above unless you put supers on—a thing not desirable. In the fall, the same holds good. The only argument I can see in favor of a small lid is the cost, and the bulk in handling and storing away. The lids I value most are large sloping-roofed covers on eight-frame Langstroth hives; the covers are about 2 x 3 ft., made by nailing shingles on a framework, and with a piece of tin along the ridge at top. They cost little; they shade the hives very much, and press well down on a chaff cushion between them and the hive. The cushion is left on all summer.

R. F. HOLTERMANN.

Romney, Ont., Can., Feb. 24, 1890.

It may be true, that the smell of melted wax and warm honey would cause the bees to fly earlier than they ought; but with us we do not care much when the bees fly out, providing the weather is warm enough so they can. But in your locality the case would doubtless be different. Those bees that fly out during cold days are probably diseased, and their presence in the colony is not very desirable any way.—In regard to flat covers, we prefer them because they are cheaper, because they can be fitted on to the hive without killing the bees, no matter how much the hive edges are covered, by a sliding motion, and because a majority of our customers call for them, and because many of our very best and most extensive bee-keepers will use nothing else. Yes, there is something in having a chaff cushion over the brood-nest for a protection; but in your locality there will be greater need of it than in ours, probably. Another thing, if you have a cover that leaves more than a bee-space over the frames, burr-combs will be built up sometimes two inches above the brood-frames if thin top-bars are used. With flat covers they can not be built in more than ⅜ of an inch; still, if the bee-keeper prefers to have the cushions he can nail the flat cover to his half-story body or section-super, and then he will have a "deep cap," as some call them. E. R.

PINE-TREE HONEY A SECRETION OF APHIDES.

PROF. COOK GIVES US SOME LIGHT ON THE SUBJECT.

Mr. A. I. Root:—I have read several items in your journal about pine-tree honey. The time of year for this honey is the first of June, or thereabout. But this has been an unusually warm fall and winter, so the insects that produce this honey have hatched out of season; so I think, and I believe you and Prof. A. J. Cook will agree with me. If you were here and would go with me out to the pine woods you would soon be convinced of the fact as to where honey-dew comes from. These insects are so thick on the pine-trees that they resemble the shingles on a house; and if you will get them between you and the light, you can see the spray of nectar, just like small drops of rain; and the way bees gather it is not "just a little and quit." I will send you a box of the aphides, so I take them to be; and if they get to you all right, just warm them up to about 70° above zero, and see for yourself. Will these insects mature and come again in the spring, or at the usual time? Let us hear from Prof. Cook on this subject.

Soddy, Tenn., Feb. 8. N. R. HAIR.

We sent the above to Prof. Cook, who replies:

The aphides, or plant-lice sent by N. R. Hair, Soddy, Tenn., were a sorry sight when they arrived. Two or three syrphus-fly maggots, which were inclosed with them, had eaten them nearly all up. A few shrunken lice remained—enough for me to determine that they belonged to the genus *Lachnus*, the same that are figured in my last edition of Bee-Keeper's Guide, but not the same species. I am not surprised to know that these pine-lice secrete much nectar, and I should not be surprised if the honey from this were excellent. I have secured honey from a species of lachnus, on the larch, and from another on the spruce, which was really *very pleasant*. You will remember, Mr. Editor, that some pine-lice from Oregon secreted enough nectar so that the leaves were fairly coated with sugar. I wrote for the press an account of these Oregon lice, specimens of which were on the sugar-coated twigs, whereupon Mr. Thomas Meehan called my statement in question. He said the pine itself secreted sugar in Oregon. In the special case, I was sure of my ground. I infer that Mr. Meehan was in error, and that in every case it was the insects and not the tree that formed the sugar. It is not strange that the mistake—if mistake it be—was made. I have noticed the lower twigs and leaves of the larch to be fairly sprinkled with nectar from the larch-lice when no lice could be found except high up in the tree; and even there the lice were on the under side of the twigs, and would easily escape notice, especially as they mimicked in color the twigs on which they rested, almost perfectly. Yet I have seen the drops of nectar falling like a shower from these lice, and lodging on the lower leaves. I have frequently set students to looking for the source of the nectar, and rarely would they discover it till told to look sharper and higher up.

Mr. Hair is correct regarding the reason for the early appearance of these lice this year. The warm weather in Kentucky and Tennessee has hatched the eggs prematurely, and hence the early appearance of the lice. Only the other day I received specimens of the grain aphis from Tennessee. Very likely cold weather may yet check and even destroy outright these unseasonable lice. For by the aid of their insect-enemies—three were inclosed in the box—they may be wiped out as were the grain lice the past summer, even though cold does not use them up. The case is too complex to warrant prediction. A. J. COOK.

Agricultural College, Mich., Feb. 11, 1889.

I am inclined to think that friend Cook is right in the matter, and that, even though many have been unable to discover aphides, they are still there somewhere; and the

keen earnest searcher after nature's truth will find them. Here is another short item from a friend, who seems to think it is not produced by the aid of insects.

NECTAR FROM PINE-TREES.

I have noticed the pine honey for several years, but never so plentifully as this winter. During the latter part of December the pines on the mountains fairly roared with bees gathering this honey, which hung on the pine leaves in drops as large as a large dewdrop. It is very clear, and of good flavor. I have not taken any, but I suppose my bees gathered from five to ten pounds per hive. Had bees been as strong as in summer, no doubt I should have had a good yield of honey. It seems to be mostly on short-leaved or mountain pine, and I think it is an exudation, and not the product of an insect. Bees have been at work most of the time since Dec. 20 on pine honey-dew, alder, and red-maple bloom. J. A. CLEMENTS.

Green Bush, Ga., Jan. 30.

THE LANGSTROTH HIVE IN GERMANY.

How and Why it has Lately Come into Popularity.

C. J. H. GRAVENHORST'S OBSERVATIONS.

SINCE the days of the late Mr. Samuel Wagner, I have watched the progress of bee-keeping in America. I remember with pleasure the time when Novice wrote his encouraging articles in the old *American Bee Journal*, telling us how he had found out something new in bee-keeping, and how he had then, in his enthusiasm, thrown up his cap toward the sky. It was a good old time, and much has since been done to advance bee-keeping, both in America and Germany, not to mention other countries. No doubt our American friends have learned something from their German brethren, particularly in regard to the *theory* of bee-keeping; but, on the other hand, the Germans have learned, also, from their friends in America. I have tried to effect this since I became acquainted with the American bee-papers.

Of course, friend Root, you know that the Germans did for a long while object to the Langstroth hive. They could not become used to the arrangement of the frames in it. Our German frames are nearly of the same size as the Langstroth frames, which are put into the hives having one long side toward top and bottom, while in the German hives the frames are put in with one short side toward the top and bottom. We were of the opinion that the bees must have their stores overhead, as in a hollow tree. But the American and other hives have proved that this is a mere theory.

Another objection against the Langstroth hive was its movable cover. One would say, "If the Americans, putting their stocks in order in the fall for wintering, remove the sealed-down packings, there will be left openings, letting out the heat, and the bees will not winter well. More especially would the bees suffer by spring management, as the openings in the top of the hive would be the reason of your spring dwindling." I think, and other Germans too, this is also mere theory; at least, there are many means of avoiding bad wintering as well as spring dwindling. So far this should be the consequence of fall and spring management, and not that of *bad* stores. Therefore I hope, friend Root, you will be glad to hear that the prejudice against the Langstroth hive is more and more disappearing in Germany, and that here and there it has become a favorite. I myself have beside my hives (*Bogenstuelper*), some Langstroth hives, and am well pleased with them. If you could see my Langstroth hives, friend R., you would, of course, say, "Well, friend G., those are genuine Langstroth or Simplicity hives, tiered up and furnished with sections, etc., just as in America." Certainly, friend R. I would say you are right, up to a certain point that I will explain to you, and one that has much to do with the fact that the Langstroth hive, here and there, has become a favorite in Germany. That the top-bars of my Langstroth frames have no shoulders, will be, so far as I know, not new to you. But you see on the front side, also on the back of every hive, two rows of ear-pins in notches—one row near the top, and one just above the entrance. These pins are wire nails that go from the outside to the inside of the hive, holding the frames in position. Every frame requires four nails—two on the under side of the frame, to rest upon, and two above the top-bar, holding the frame down. These pins go through the wall of the hive, $\frac{1}{16}$ of an inch from the edges, on top and bottom. They rest in V-shaped notches in every corner of a frame. These notches are ¼ inch deep and ½ inch long, leaving, above and below the frames, a space of $\frac{1}{16}$ inch, if the frames are fastened in the hive. By this arrangement the frames stand in the right position from the wall, having a fast support. The nails do not allow the frames to move in the least, even if you turn the hive top side down, as the whole hive, as well as every frame, is reversible. In managing the hive you will first take away the cover-board. This has underneath it a space of ¼ inch; then open the hive as you are accustomed to do, and you will at once seize with the right and left hand an ear-nail, one in front and one on the back, near the top of the hive, and pull them half way out, but not more, so that you may get a frame without hindrance from the nails. The frame rests now on only the two pins on the bottom, and you may lift it out without trouble. But if you are anxious to destroy a queen-cell, etc., then you may pull out the four nails of the two adjacent frames, and then you have more space to get at a frame than you need.

I hear you ask, friend Root, why I prefer this nail arrangement. Although I am sure to know some of the objections you will have to the nails, I hope you will not deny that the advantages of them are greater than the disadvantages. I answer your question, first by quoting Ernest in GLEANINGS, page 99, Feb. 1: "Where bee culture is carried on to any considerable extent, a system of one or more out-apiaries is almost the inevitable result, and out-apiaries means *moving bees*. The hanging frame not fastened, although bees *can be* moved to and from out-apiaries on it, necessitates careful driving and good roads. Our men during the past season, in moving bees, could drive no faster than a walk, and that with extreme caution in places. With a couple of expensive men, one a teamster and the other a practical bee-keeper, to say nothing of a valuable team, slow driving, all because the frames are *hanging and not fixed, is expensive*. To stop and stick up each frame in a load of 35 colonies, simply for the sake of driving fast afterward,

is just as expensive. What we want is frames *always* fixed, always ready for moving at a brisk drive, and yet sufficiently movable to be readily manipulated in the hive."

Second: The hive as well as every frame is reversible. You can turn the hive over, and manage your bees from below, if you like it, and this I value in the highest degree. After the honey season is over, toward the fall, the bees have sealed down beautifully the top packing for the winter. Not to disturb their winter arrangements in the fall as well as in the spring, the hive is to be simply turned up. You lift out whatever frame you desire, and put in one or two division-boards, or exchange this or that frame with such a one as has plenty of honey, and so on. Hereafter you turn your hive again, placing it on the bottom-board, and your bees have their arrangement just as they think it necessary for good wintering. Now comes the spring. I remember you said once in GLEANINGS, it would be of great value, at times, to get a glimpse at the bottom of the hive. I think you have hit the nail on the head. If you turn the hive over, whatever is to be accomplished in that way, let the top-bars stand with one end toward you; then you will see at a glance how many combs are occupied by the bees; how strong the colony is; and the weight of the hive tells you how it is with the stores. There will be no draft going through the hive from the entrance, as in the case of removing the top packing, and taking away all the heat of the hive. You need not be afraid of injuring a colony by taking a glimpse at the bottom of the hive, even when the weather is not warm; you need not even fear early spring management. Less than one minute is sufficient to ascertain how it stands with a colony, if you turn a hive over.

As soon as the weather becomes favorable, say in swarming time, you may manage your bees from the top of the hive, except the swarms you have hived. At such times I fasten the top packing, as the swarms need the warmth, especially on cool days and nights, and turn the hive over; give five, six, or more frames, with strips or sheets of foundation, adjust the division-board, put in the swarm, and bring the hive to its right position on the bottom-board. Two or three days afterward I turn my hive bottom up, give a little smoke, and I see then what my swarm has done. If it has built crooked combs or drone combs, then I take a knife that has a sharp hook, one inch long, and a long handle, and cut away the drone comb or fix the crooked combs. In most of the cases that will do it; and if not, there is not any trouble in lifting out those frames with drone or crooked combs, so as to fix them in my hands. In nine cases out of ten it will not be necessary to do this. One who does not like turning a hive over does not know the advantages of it. I would rather give up bee-keeping than not be able to turn my hives over to handle them. I am sure, if some one has the inverting system put to the proof, he will soon like it: and if not, he may manage his hives from above only.

Friend Root, I am sure you will not misunderstand my article. I have told you how and under what conditions the Langstroth hive has made friends in Germany. C. J. H. GRAVENHORST.

Wilsnack, Germany, Feb. 17.

Many thanks, dear friend G., for your very kind letter. Yes, I remember well when I sailed my hat when so much honey had come, and I remember the time, too, when the hat went up into a tree and we had quite a little time in getting it down again. I am very glad indeed to know you are using a frame so near the universal Langstroth used in our country; and your arrangement for reversible frames and reversible hives is certainly exceedingly ingenious. Of all the models that have been sent us, I do not now think of one that accomplishes the result more perfectly than does yours. There is one difficulty that suggests itself, which you have doubtless obviated in some way. This difficulty comes from Ernest. He thinks if those nails move loosely enough to be handled by the fingers, in drawing hives to out-apiaries the nails would slip when we do not want them to, and let the frames down. Thumb-screws with a very coarse thread would stay at any point; but they would be more expensive than nails, and slower to manipulate. Yes, I have often thought of the advantages of turning the hive over to remove the frames; but I feel pretty certain that our American people would consider it too much bother and too much machinery. Lest some of our readers may not get hold of your idea, I will explain that you use the Langstroth frame, without any projections for the frame to hang on. Next, the end-bars to every frame have a V-shaped notch cut in each end. The nails going through the end-board to the hive, reach through into these notches. In order to remove the frame, the upper nails must be pulled back sufficient to allow the frame to lift up. Perhaps some of our friends may think best to test a hive or two made in this way.

BIOGRAPHICAL.

H. R. BOARDMAN.

IN our last issue, page 152, I gave you a new portrait of James Heddon. I take great pleasure now in presenting to our readers another half-tone portrait, which is also to appear in our A B C, of a no less prominent and no less distinguished bee-keeper — Mr. H. R. Boardman, lately president of the Ohio State Bee-keepers' Association. Just before the said association was called to order, and while we were lamenting that our president, on account of illness, probably would not be in attendance, Dr. Miller said, "Mr. Boardman has always impressed me as being a solid man." Several nodded a hearty assent, Dr. Mason among the number. Later, when Mr. Boardman had finished reading his essay, we were more impressed than ever with the truthfulness of Dr. Miller's opinion of him. It has been my pleasure, as you will remember, to make our friend a visit. I stopped with him something over a day. I remember that the impression left with me was, that he was a very careful observer, slow in arriving at conclusions, and that, when he did come to one, he was pretty sure to be right.

Some years ago we gave a portrait engraving of "the man who always winters his bees," and that was the subject of this sketch. At that time, when everybody was

losing quite heavily, it seemed very remarkble. At the present time the wintering troubles do not seem to be so perplexing. Whether our friends of the indoor preference have followed in the wake of Mr. B., or through their own investigations have adopted the same plan, and hence are successful, I can not say; but certain it is, our friend was among the very first to be able to assert that he always wintered his bees. For a detail of his method see GLEANINGS, page 319, last year.

As I have already hinted, Mr. Boardman is not much inclined to run after new things. If he is successful with what he has, he is content to let well enough alone. He uses a frame which is essentially square. I believe when he first adopted this he considered this as one of the reasons why he wintered successfully; but latterly, he has not attached very much importance to the size or shape of the frame for successful wintering.

H. R. BOARDMAN.

Mr. Boardman runs a number of out-apiaries, and I believe he keeps on an average some 300 or 400 colonies. He produces comb honey almost exclusively, and that in wide frames three tiers deep. Instead of putting on a single tier of sections, and afterward raising it up and putting an empty one under it, on the tiering-up plan, he puts the three tiers on *all at once*, aggregating some 50 sections. Most bee-keepers think that that is too large a capacity for the bees to begin on, and keep to the proper temperature for comb-building. Our friend admits, I believe, that there is something in this, but he argues that he saves a good deal of time and labor in putting on a full hive of sections at once and afterward removing the whole at one operation.

Mr. Boardman's manner of contraction is peculiar, and, I believe, original with himself, although others have advocated a similar practice. His hive is side opening, and, to force the bees to carry the honey above, he cuts out the combs in the brood-frames, leaving, perhaps, a third of the comb at the top. Honey coming in, the bees are obliged to carry it above. In the mean time, the queen's capacity for laying is restricted, and the swarming mania is kept down.

Mr. B. does not write very extensively for the bee-journals, although he is a good talker, and full of ideas. He is prominent at conventions, and while he has the floor he is careful and reserved in his statements.

When I visited our friend I was surprised to note that he was considerable of a naturalist. He has a large collection of stuffed animals from all parts of the United States. I was once somewhat interested in taxidermy, enough to appreciate good work when I saw it. Mr. Boardman's specimens are lifelike, and seem to possess all the ease and grace that nature has so kindly endowed them with while breathing God's pure air.

I am well aware that I have said some things in rather high praise of our friend; but he is a man who will not be spoiled by praise. Mr. Boardman is one of Ohio's most prominent bee-keepers. ERNEST.

PREVENTION OF INCREASE.

DOOLITTLE SUGGESTS THREE METHODS OF SECURING IT.

NOTWITHSTANDING the articles which I have given lately, on keeping bees from swarming by the manipulation of hives, etc., I am still requested to tell, in GLEANINGS, how increase can be prevented by some of the older plans which I have successfully used in the past. As the swarming season will soon be here, if it has not already begun in the South, owing to our very warm weather during the whole winter, perhaps I can do no better at this time than to comply with the request. The plan of preventing increase, which has given me the best satisfaction of any thing which I have ever employed, is as follows:

Early in the spring, before the bees get brood in more than three or four combs, shut each colony on to five combs by means of a division-board; and if these combs can contain brood and honey in the proportion of three of the former to two of the latter, they will be in just the condition I would have them, the two latter being nearly solid with honey. By thus being filled with honey we are assured of two things: That they will not need our immediate attention for fear that they will get short of stores, and that brood-rearing will go on without interruption, no matter what the weather may be, with so much honey in so small a brood-chamber; for, early in the spring, before honey comes in from the field, a large amount of honey is a great incentive to brood-rearing. As the combs become filled with brood, combs of honey are set in the vacant space beyond the division-board, so that there will be no danger of the bees starving when the combs they occupy become so full of brood that there will be no place for honey in them. If some of the colonies get their five frames full of brood before the others do, take a frame of hatching brood to the weaker, and give the stronger an empty comb, or

one of honey, taken from the weaker, and so on till all have their five frames absolutely filled with brood.

If you have been as successful as you should be, this point in the operation will arrive from two weeks to ten days before the honey harvest, you aiming to have it be thus from the start, just in accordance with the location you occupy. When all are thus full of brood, go to hive No. 1 and look the frames over till you find the queen, when you will set the comb she is on outside of the hive, and carry the other four combs of brood, bees and all, to hive No. 2. You will now open this hive and spread apart the frames so as to set the combs you brought from No. 1 in each alternate space; for by so doing there will be no quarreling of bees; at least, I have never known them to fight, during a period of 16 years' practice.

When you have the combs thus arranged, the surplus arrangement is to be put on, and the hive closed. You will now go back to No. 1, put the frame having the queen on it back in the hive, and give them a frame having a strip of foundation ½ inch wide fastened to the center of the top bar for a comb guide, when you will adjust the division-board to suit the size of this little colony, and close the hive. If there is any honey coming in from the fields, which there generally is at this time, although the main flow has not commenced, you will find the nicest worker comb you ever saw in this last frame at the end of a week, and it will cost you less than you could get the same comb built from foundation. When this frame is filled with comb, take it out and put in another empty frame, and so on all summer; for the one comb the queen has will give bees enough to keep them in excellent order so that they will build worker comb all the time. In this way I secure all the combs I need in the apiary, and in the fall unite several of these little colonies together, or give them to some of the weakest of the other colonies I may chance to have. The colony in No. 2 soon has a hive full to overflowing with bees, of just the right age to work in the harvest to the best advantage, and will roll up a pile of honey, I assure you. When they swarm they are to be treated the same as you always have treated the swarms, so that, should all swarm, you will have only the same number that you did in the spring, thus preventing increase.

The next plan which I use is that of caging the queen upon the issue of the first swarm, and placing her on top of the brood-frames or any other convenient place, and allowing the swarm to return. Six days thereafter the hive is opened, all the queen-cells cut off, and the queen left where she was, for eight days more. At the end of this time the queen-cells are again taken out and the queen liberated, after which they seem to have no more desire to swarm that season. In cutting out the queen-cells I shake the bees off the combs each time, and in this way no cells need ever be missed. If this precaution is not taken, cells will often be missed, which will cause much trouble. While the queen is caged, the bees will store honey to a certain extent in the brood-combs, in cells from which the young bees hatch; but when the queen is liberated this honey will be carried to the boxes, and I do not know that I have ever seen work progress faster in the sections that I have for the next week after the queen was returned to the bees.

The last one of the plans is the one recommended by Prof. Cook; namely, when the first swarm of the season issues, it is hived in a separate hive, when the next one is hived with the old colony from which the first one issued; the next is hived where the second came from, and so on to the end of the season, thus giving us only one increase. This plan works well with a short and rather poor season; but when the season is long continued, many of the colonies first treated swarm again with me, thus making too much work. On the whole I much prefer the first plan. G. M. DOOLITTLE.

Borodino, N. Y.

SHALL WE USE QUILTS OR ENAMELED CLOTHS?

DR. MILLER HANDLES THE SUBJECT IN ALL ITS BEARINGS.

I HAVE been quite interested in studying the answers to Question 152. The answers are about two to one against the use of enamel cloth, in the production of comb honey, under a flat cover, in a five-sixteenths space. On the other hand, about two to one are in favor of using the cloth in the same place for queen-rearing. Some are quite positive that the cloth should be used in both cases, and some just as positive that it should be used in neither, while some think it should be used for queen-rearing but not for comb honey.

I am not surprised at these different opinions, for at one time or another I think I have agreed with all, and I suspect that, with exactly the same thing in mind, the different respondents would have very little difference of opinion.

When I first commenced using movable combs, a flat board with holes in it, called a honey-board, was placed over the top-bars, with a ⅜ space between and an outside cover above. A pretty solid mass of brace-combs and honey filled the space between the top-bars and the honey-board, so that, every time the hive was opened, the honey-board had to be pried up, the jar thereof greatly irritating the bees and making a dauby mess. On closing the hive again it was difficult to keep from mashing bees between the brace-combs as well as at the edges. Those who never used exactly the same thing can hardly imagine what a boon was the sheet, or quilt, invented by Robert Bickford, and I can readily excuse those who had been through my previous experience for being hard to convince that quilts could be dispensed with under any circumstances. Please understand, that the quilt took the place of the solid honey-board, the same outside cover being used over either. The principal difficulty was the lack of durability, no substance being found to answer well the purpose, through which the bees would not gnaw holes in a provokingly short space of time. In spite of this objection I think I should have continued to this day to use quilts had I continued to use the same kind of covers. Those who object to quilts because harder to remove than flat boards, can, it seems to me, hardly speak from actual experience; or if they do, there must have been something wrong about their experience. After I began to use Heddon and T supers, I noticed, in tiering up, that the upper super was not so free from propolis as those under it. After a time it occurred to me that the quilt was the cause of the trouble, for the bees were sure to put propolis upon the tops of the sections under the quilt, sometimes more than an eighth of an inch

in thickness. Sometimes a ridge of glue would extend clean around the edge of the top-bar of the section, providing the quilt lay flat upon it; but often it was plastered over any part of the top, depending upon how the quilt lay upon it. Reluctantly I concluded to try whether I could dispense with the quilt over the sections, and had a few cleated covers made to fit the supers, with no thought of using any thing of the kind on the hives. The result was so satisfactory that I had covers enough made to supply all my colonies. I suppose, friend Root, I was just as strongly in favor of quilts as you, but I feel pretty certain that, after enough experience both ways, you would say you never want any quilt over a T super, even if you should continue to use them directly over brood-frames. You say, "The great reason why I prefer enameled-cloth sheets is, that the hive may be opened and closed without killing bees." In the case before us, with the five-sixteenths space over the sections, I'll agree to put on the board cover without killing a bee, and I'll do it in less time than you will put on the cloth and cover, if you don't kill any bees. You see, there is no chance to kill any bees with the board alone, except on the upper edge of the super rim, and you can put on one end of the cover and then play it up and down a few times as you gradually close it, and every bee will get out of the way. As you very properly say, "It takes time to replace the enameled cloth in such a manner that not a single bee can get above it." And then after you have taken time to accomplish this, if you promptly put on the cover you are quite likely to imprison some bees between the cloth and the tops of the sections. I know, for I have done it. You say, "It is worth a good deal to me to be able to pick up any cover from any hive in the apiary, without any snapping or prying." True; and it's worth no little to me, as I lie in bed at night, when the wind is blowing great guns, to know that my covers are all glued down, and that I'll not have to hustle around in the morning to cover up hives in the out-apiaries, which the wind has uncovered, letting in the drenching rain. You say, "The enameled cloth also prevents the bees from pushing up burr-combs above the tops of the frames." Why, Mr. Root, the--what are you talking about, any way? I have scraped off pounds upon pounds of burr-combs that the bees had built over the brood-combs, pushing up the quilts to do so as much as half an inch and even an inch! In the case before us they could not do so, for there is only a five-sixteenths space.

For queen-rearing it is certainly nice to peel up a cloth; and yet if only a five-sixteenths space is to be allowed, I think my answer is wrong, for I am quite sure a good many bees would be killed by the cloth. I certainly would want a larger space if using a cloth, unless, indeed, the possibly coming heavy top-bar prevents all brace-combs above the brood-frames, in which case I think I should dispense with cloths, even for queen-rearing.

Marengo, Ill., Feb. 1. C. C. MILLER.

Friend M., some of the quotations you make were expressions I made a good while ago—at least it seems a good while as I read them just now. Another thing, my experience was mainly with hives for queen-rearing; and in sending off nuclei we have been in the habit of taking pretty much all of the honey stored, about as fast as it comes—that is, as fast as it comes when the colonies are divided and subdivided whenever they get strong enough to bear it and preserve enough bees and brood to take care of the queen. Another thing, this matter of wide and thick top-bars seems to be tearing up every thing; and I confess that I can not imagine how it is, that, when we did have great heavy wooden top-bars, fifteen or twenty years ago, nobody discovered that, if made of just the right dimensions, they would effectually do away with burr-combs—too wide and too thick, as it seems to me. Over them was just the kind of a honey-board you describe, on which to place the boxes. Now, this honey-board, so far as I can remember, was just about a bee-space above the top-bars; and yet, whenever a honey-board was removed, there would be so many burr-combs filled with honey that one could scarcely see the top-bars at all. Having such a mass of honey and wax every time we wished to take out the frames was such a daub and a nuisance that I gladly welcomed the quilts, as they prevented it; and we used the enamel cloth for years after, with great satisfaction. We are now going back to almost where we were years ago. This is not only true of top-bars, but other things, also, are swinging around in the same sort of way. Even the Peet cage, that has been of such benefit year after year, is to be laid aside, and something very much like our old-fashioned one substituted—at least, the boys are recommending something of the sort; but notwithstanding all this, we are making progress. Our implements are becoming cheaper and simpler and *cleaner*. I think, however, it behooves us to go slow, and to be careful about throwing away some new things, and going back to old ones.

A PROTEST.

AUTOMATIC SWARMING AND CARNIOLANS.

WHILE Mr. Alley and others are disputing about the self-hiving arrangement, and Mr. Doolittle is giving advice concerning other arrangements for hiving the bees without having them swarm, I wish to protest against the whole arrangement as being unsatisfactory and entirely too expensive. None of the plans suggested can be made a success without an extra hive for every colony of bees owned by the apiarist practicing such methods. Hundreds of bee-keepers have all the bees they want, and it is no more expense, and a good deal more satisfactory, to keep a good hand in each out-apiary than it is to have a couple of hundred dollars' worth of empty hives around, watching for just what we don't want—swarms.

The most of these teachers are queen-breeders. They encourage the swarming impulse in their breeding operations, and send their queens to all parts of the country, diffusing this swarming mania wherever they go. Why not spend more time, thought, and energy, in producing strains of bees that are indisposed to swarm? In my first experience with bees, a noticeable feature was, that some colonies were predisposed to swarm, while others were just as determined not to swarm. Our increase came from the swarms, while the greater

part of our honey came from colonies that did not swarm.

Fifteen years of practical experience with bees has caused me to believe that, with proper care in breeding, the swarming disposition can be almost entirely done away with; and what is better, too, we can make our increase when and where we want it, and our supers are not deserted just when we least desire it. On the 5th of May, 1878, a fine swarm was cast from a colony in my apiary. Seven days later, young queens were piping in the old colony, indicating another swarm. I divided them to prevent their swarming. In July these three colonies each cast a swarm; and the one cast on the 5th of May cast a second swarm, making an increase of five from one. Other colonies did not swarm at all that season.

BAD FOR CARNIOLANS.

In May, 1889, I procured an extra-fine Carniolan queen from prominent parties. This colony gave me more bother about swarming than a hundred colonies of Italians; for when the honey-flow ceased, the Italians quit swarming, but the Carniolans consumed their stores in brood-rearing; and although they had swarmed during the honey-flow, they swarmed again at a time when there was not enough coming in to enable them to build comb. Yet these breeders tell us that they have no more trouble in controlling the swarming impulse of the Carniolans than they do that of Italians. But if we read their instructions as to how they manage their breeding-apiaries, we find that their breeding colonies are kept at a *fever* heat, crowded and fed so as to have them swarm early and late and often, for the purpose of securing queen-cells under the "swarming impulse." Not only this, but a higher value is placed upon queens produced under this swarming impulse. Away with this nonsense! and away with your patented or unpatented device for hiving swarms or increasing the number of colonies! Give us queens from the non-swarming strains. If properly reared they are just as prolific; they will live just as long; they are just as pretty, and are worth a hundred per cent more than your swarmers, because they will stay in the hives and keep the bees there during the honey-flow. S. A. SHUCK.

Liverpool, Ill., Feb. 20.

Friend S., there is some truth in what you say; but don't you step pretty hard upon the toes of some of our good friends? I have felt as if there were a good deal of machinery to these automatic hiving-arrangements; but then, there *may* be a good deal in it. Let us wait for the unbiased judgment of next season. Carniolans,—well, they *do* swarm excessively—at least they have been so reported a good many times. The last we tried swarmed, and stung like hornets. The first we tried swarmed likewise, but they were not so cross. E. R.

In addition to the above I wish to emphasize the point that friend Shuck has brought out. Even if automatic swarming should be a success, extra hives must be provided for each colony that is liable to swarm, and an extra swarming-machine also. Now, where a bee-keeper does not desire increase this will be quite an expense over the ordinary methods of having somebody look after the apiary.

THE OHIO STATE BEE-KEEPERS' CONVENTION AT CLEVELAND.

RECOLLECTIONS OF WHAT WAS SAID, AS REPORTED BY ERNEST.

As was previously announced, the convention assembled in Cleveland, in the council chamber of the City Hall. The room was large—in fact, nearly as large as the senate chambers in some of our State capitols. While it was elegant as well as commodious, it proved to be a little too large for the average speaker to be heard distinctly. In this connection let me say, that, from what conventions I have attended in large halls or rooms, I am of the opinion that it would be better if we could have a smaller room—say one that would seat 100 persons for our State conventions and 200 or more for our International.

There were about 75 bee-keepers present at the morning session. The largest number at any one time was something like 90. This number included some quite prominent bee-keepers, among them being Dr. C. C. Miller, Dr. A. B. Mason, H. R. Boardman, S. F. Newman, J. B. Hains, O. J. Terrell, Mr. Spitler, F. A. Eaton, Miss Dema Bennett, Dan White, Mr. H. F. Moore, Dr. G. L. Tinker, Chalon Fowls, Dr. H. Besse and others. Mr. Boardman, although not present at the opening of the meeting, came in a little later. We were previously informed that the president would probably not be in attendance, on account of ill health, and accordingly Dr. Miller, who had honored us by his presence, was invited to act as chairman, which he did until the president arrived. Among the first subjects that came up was:

THE PRODUCTION OF COMB AND EXTRACTED HONEY; SHALL THE TWO BE PRODUCED TOGETHER?

It was generally agreed that the two could be carried on successfully, but that it will depend upon the locality and the market as well as upon the man. H. F. Moore, of Cleveland, who has sold tons of honey in a wholesale and retail way, found that, where bee-keepers produced *comb honey*, there was less suspicion of the *extracted honey* being adulterated. The question then turned upon the matter of preparation. If the bee-keeper is prepared in advance to produce either comb or extracted honey, he should run for one or both, according to circumstances. The question was then asked, "What is the preparation?" Dr. Miller said, "Order your supplies early."

"How early?" some one asked.

I replied, "About six months." But some of the old bee-keepers said that they wanted their supplies *before* that time.

The discussion finally turned upon extracted honey. J. B. Hains always extracts from light-colored combs. Dr. A. B. Mason did not believe that it made any difference. O. J. Terrell never extracts from the brood-nest. Dr. Mason does, when he thinks he can do it safely.

You know, when bee-keepers get to discussing a thing at conventions, in spite of the president's efforts to keep them in one channel of thought they will sometimes

switch off on to another question; and, although regularly out of order, some most valuable points many times are brought out.

I can not remember just how it came up; but at any rate the question assumed somewhat this form: "Are not the successful bee-keepers those who have their wives help them in the apiary?" Prominent among the number, F. A. Eaton thought that wives are a necessary adjunct to an ordinary apiary; in fact, he said he could not get along in his apiary without the assistance of his better half. Dr. Mason would not oblige his wife to work among the bees. Dr. Miller did not agree: it depended upon what they did. When the women-folks had not been in the apiary for two or three days, things got "awful disorderly." If they did not visit the shop every so often, things got into bad shape. When we come to the neat part, women are the best—"better than a horse." Dr. Mason urged that it was not necessary for bee-men to be slovenly—they may just as well keep things neat as not.

Somehow or other, at this stage of proceedings, somebody—I guess it was Dr. Mason—suggested that there were members present who had not paid their annual dues—50 cents. He did not want anybody to come and "absorb" without paying for it. Just then Dr. Miller said it was worth 50 cents to hear bee-men quarrel about their wives.

Along about this stage of the proceedings we had the pleasure of having one of those bee-songs, the words of which were composed by Eugene Secor, and the music by Dr. C. C. Miller, rendered by Dr. M. himself in his usual characteristic way. Again, I noted that the music had an effect in enlivening the subsequent discussion.

REVERSING.

This was next discussed by Chalon Fowls, of Oberlin. Mr. Fowls is one of the most enthusiastic bee-keepers. I well remember, that, when I was a student at Oberlin, he used to come and talk over some of his views on bee culture. He always had some hobby, and latterly it was reversing, and is yet. Mr. Fowls in convention thought it paid him in dollars and cents to reverse; he could get more brood, and consequently raise more bees in *one brood-chamber*, and have them ready for the season when he wanted them. He also averred that he could, to a certain extent, prevent swarming. He never allows the brood to hatch in the upper part of the frames. Just as soon as the lower part is sealed over he reverses, which causes the bees to carry up the honey, and leave the cells empty for the queen to fill with eggs, which she does. As a result, the young bees hatch out at the bottom of the frame, while the upper part is filled full with sealed or unsealed brood as the case may be. He did not think that reversing killed the imago queens in capped queen-cells. That theory, he thought, was all nonsense. As to the matter of swarming, it prevents it to a certain extent, for the reason that it gives the queen more room in which to lay. There is, perhaps, something in this statement. Mr. E. France once said in GLEANINGS, that, if the queen has all the room in which she can lay, and not be crowded, the bees will not be likely to swarm; but to give her plenty, it is usually necessary, under ordinary circumstances, to give her room in the *upper* and *lower* story; but Mr. Fowls endeavors to give the queen all she needs in the *lower* story, by reversing. The next question was

REVERSIBLE EXTRACTORS, BY DR. MASON.

Although an extractor man, he had never tried reversing-machines. I believe he said he had seen one in use, and liked its operation. Not having had practical experience himself, he read a number of extracts from GLEANINGS, from those who had used them. On the whole, the doctor liked reversible extractors; and, if I remember correctly, he was going to purchase one for next season's use. Dan White said the trouble was not so much in the *extracting* as in getting combs *uncapped*. For him, a two-comb machine would do the work as fast as or faster than an assistant could uncap. Some way the convention got to arguing pretty earnestly on the theory of large and small extractors. All sorts of books, sticks, and whatever the one who had the floor could get his hands on were used as object-lessons to express their theories; and finally they got to arguing fiercely as to whether a big grindstone would turn as easily or easier than a small one. I can not remember just what conclusion they arrived at; but at any rate I remember that I was pretty well mixed up. I believe it would be a good idea if, instead of books and sticks, we could have the things themselves right in the convention room, so that we might the better illustrate our ideas. At the Ohio State Convention I took along with me a part of a Van Deusen reversible frame that I might the better describe it. If there had been an extractor at the Ohio State Convention, we could have put it right up on the desk for an object-lesson. I am putting in this last as a sort of parenthesis, for the future—not that I think that supply-dealers should carry their wares with them, to induce sales, but that bee-keepers themselves should take along with them, or cause to be sent, whatever they propose to discuss in detail.

We next listened to an essay from Mr. H. R. Boardman on the subject of

BEE-KEEPING, PAST AND PRESENT.

The president discussed some of the improvements in bee-keeping appliances. He thought that hives and fixtures were about as perfect as we could get them. He did not think the hive, its size or shape, would increase the honey-crop. When he first began bee-keeping he thought that if he could master the wintering problem, success would be certain. He would then set out apiaries by the score, and start what he would call the Northern Ohio Honey Company. By careful experimenting and observation he finally mastered the wintering problem; but a poor season would come on, and he would be no better off than before. Visions of the "Honey Company" began to wane. For two or three years back he said

he had been *expecting* and *hoping* for a good honey year; but as each year went by and closed without seeing his hopes realized, he was hoping that *next* year would surely be a good season. He did not know why, when formerly he had produced good crops of honey, he should fail now. He attributed a part of the cutting-off of the nectar to using basswood in large quantities for sections. For some reason or other, clover had failed. He had had some experience with alfalfa, and he had had great hopes that something might be realized from this source; and as he closed, it was evident that his paper had something of a discouraging outlook for bee-keepers.

ALFALFA.

This having been mentioned in Mr. Boardman's paper, it was discussed. Some argued that neither alfalfa nor sweet clover would grow in our soil very well; and that the latter, cattle would not eat. Quite a number, however, testified that, under some circumstances, cattle would eat it. On the whole, a hopeful view was taken of the possibilities that might be developed from alfalfa and sweet clover in the way of a new source for nectar. Dr. Miller, in commenting on Mr. Boardman's paper, said that he, like Mr. Boardman, had been waiting for a good season. The third year came, and he secured a good crop—some 12,000 lbs. of comb honey, and he thought our friend Boardman would come across a good season yet, which would very largely make up for the reverses of the three preceding seasons. In fact, a good many testified that clover had, for two or three years past, seemingly failed, but had now begun to yield nectar as a whole, and they hoped that their old-time big crops would come again.

H. F. Moore thought that bee-keeping was no worse than a good many other rural pursuits; they all have their poor and good seasons. Sometimes farmers have three bad seasons.

THE QUESTION-BOX

was then introduced. The first question was, "Shall we use sections filled or partly filled with foundation?" It was answered by a vote. Twenty-five members voted for full sheets and nine for partly filled sheets, and the rest did not vote either way. The next question was, "Shall we advise our neighbors to embark in bee-keeping?" A good many spoke on this question, and many said no. "Is it advisable to shut bees in their hives with wire cloth, in the cellar?" A. I. Root said, "Yes, it can be done." The general consensus of opinion was, that, although it could be done, it was not advisable—at least, not for beginners. Another question was, "Are house-apiaries preferable to hives?" J. B. Hains said, "Hives, always." No one demurred at this statement. The next question, "What is the best remedy for bee-stings?" brought out considerable discussion. Dr. Mason recommended oil of cloves, even though it did "come out of a bottle." Some one said, "Grin and bear it." Mr. Eaton called attention to the fact that the evident intent of the question was, what to do in cases of *severe* stinging. Although a strictly temperate man, he recommended whisky, and cited a case where it had undoubtedly saved a life. Mr. Phelps related another instance of what he thought was an equally serious case, but the individual lived through it. Some of the friends got to arguing pretty seriously. Dr. Mason said it is a well-known fact, that, when a person is bitten by a rattlesnake, if he drinks a quantity of whisky it will not produce intoxication; whereas the same person could not take half the quantity without the snake-bite, and yet not be intoxicated, which he thought is an evidence that the liquor counteracts the effects of the poison. A. I. Root then cited the fact that an eminent author, writing on the subject of venomous serpents, for the *Century Magazine*, made the statement that it is very doubtful whether liquor has any effect. The discussion ran pretty high, when it became evident that the feelings of some might be hurt. It is safe to say, however, that every one present was a teetotaller, so far as liquor is concerned.

The next subject under discussion was

MARKETING EXTRACTED HONEY,

by H. F. Moore. He has sold both comb and extracted honey, in the wholesale and retail way, to the extent of many tons, and has probably had as much experience as any other man in the business. He first took nice samples of honey around to private houses, and in a gentlemanly way asked if he might have the privilege of bringing them around, at another day, a bottle or two of honey, naming the price. Usually he would secure an order. Politeness and courtesy have a good deal to do in being able to dispose of honey in this way. If customers did not seem disposed to purchase, he did not urge them. Latterly he has sold direct to grocerymen, putting the honey up in Muth jars, and covering the cork with a nice piece of tinfoil. Mr. Moore is working up a reputation for his honey, and grocerymen recognize that he always handles nice honey, put up in nice packages. He has only recently begun to sell to grocerymen, and has sold already something over 100 gross of Muth jars of honey. A reporter for a Cleveland daily paper got it down something *over 100 bottles*, and commented on it as a fact that it was a very large sale. I hope I have got it nearer right. Unscraped sections, such as are covered with propolis, are unsalable, said Mr. Moore. In regard to "extracted" honey, he did not like the name. He prefers the word "clear" honey, the same as the Germans use. He had experienced difficulties on all sides from the Wiley falsehood. In many cases he had hard work in convincing them that his honey was honest honey.

SHIPPING HONEY

was another topic for discussion. Dr. Miller was asked how he shipped that 12,000 lbs. of honey which he sold for cash to an eastern firm. To make the combs of honey more secure, he fastened a small starter at the top and bottom of the sections. This insured the attachment of the comb to the top and bottom, and also to the sides. In

packing his honey in double-tier 24-lb. cases, using a thin board between each tier, the cases were piled one above another, in such a way as not to fall down. The sections, as a matter of course, were placed parallel with the rails. Mr. Moore said he had received small shipments of comb honey badly broken down. The tiers of cases were piled one on top of another to the height of an ordinary man, and were piled by themselves. When the car was bumped into, the pile toppled over, and down went the honey. Mr. Moore urged another point, and that was: Do not put poor sections in the crate with good honey. You will lose more than you gain.

We next listened to well-written essay on the subject of bee-forage, by S. F. Newman. I wish to say right here, that this essay was one of the most scholarly that was ever prepared and read at a bee-convention. Mr. Newman introduced the subject by a very neat prelude about the bee-keeping of today and that of Virgil's time, and said we had not made *so very much* improvement since then; in proof of which he cited some very beautiful translations from Virgil—translations that were evidently his own. I have read Virgil and one or two more of the Latin poets, and I think I can appreciate somewhat when I hear a good translation. If one of these had been rendered in the class-room, the professor would, I am sure, have given it a very "tall" compliment. Coming more directly into the subject of bee-forage, Mr. Newman cited an instance where his bees at home were doing almost nothing, while those a few miles out were working very heavily on peavine clover. From the latter apiary he produced a large crop of honey, and had it on sale in the groceries. I have seen and tasted samples of it, and know it was fine, and that the crop was large. Mr. Newman recommended that, when a basswood is cut down, we set out another. He would induce farmers to set out mammoth peavine clover and buckwheat, and sweet clover along the creeks. It can be made to take the place of ragweed. if we think so. Mr. Newman, in his essay, made allusion to Virgil's method of watering bees. This brought out the fact that one of the members—I think it was Dr. Bessie—soaks rotten wood in water, and places it accessible to bees. On the matter of alsike clover, all were not agreed as to its value to farmers. Mr. Eaton said that the farmers did not like it for stock, although others testified that their farmers do. While I am about it, I wish to say that that ingenious little story about artificial eggs that would hatch chickens that had no feathers, originated with Mr. S. F. Newman. You will remember that it was copied through the press, north and south. His object was to counteract, by a piece of pleasantry, the manufactured-comb-honey yarn by bringing up another parallel case, so obviously ridiculous, preposterous, and impossible, the gullible public would begin to doubt whether artificial eggs or comb honey were any thing more than a myth; and the story had a wonderful effect, although there are some old fogies who will continually persist in thinking that artificial eggs have been made, so perfect that chickens would hatch from them without feathers.

A good deal was said for and against sweet clover.

As to alsike, some said their farmers would not use it again, and others testified to the contrary. Come to sift the matter down, it seemed that a good deal depended upon the soil.

Along about this stage of the proceedings, your humble servant introduced the subject of thick top-bars. It will be unnecessary to repeat the same here, as there has already been considerable said in regard to the matter in these columns. In my paper I alluded to the fact that honey-boards might possibly be displaced entirely by heavy top-bars; and I was astonished to find how many of the bee-keepers of Ohio have never used honey-boards, and would not use them. A vote was then taken, and I think only about 20 per cent had used honey-boards, the rest either using heavier top-bars or else putting up with burr-comb attachments.

OUT APIARIES.

This subject was discussed by Mr. J. B. Hains, of Bedford, O. He did not think it necessary to have an assistant to keep in attendance. He ran for extracted honey; and what little swarming there was, families were rewarded for the hiving by gifts of honey at various times. No attention was given to the bees until the swarming-time. Then he goes with the wagon and takes along as many empty combs as he can carry back in a load of others filled. While in the apiary the filled combs are taken out and replaced by the empty ones. He returns home and does all his extracting where he has conveniences. If there is any robbing to be done, it will take place under his supervision, and not in an out-apiary where members of the farmer's family might receive a good deal of annoyance.

To reduce swarming to a minimum he prevents the rearing of drone brood by every possible means. He gives them plenty of shade and ample entrance.

CELLAR WINTERING.

This was discussed by Frank A. Eaton. After having tried the outdoor and indoor methods he prefers the latter, because it gives him a chance to use the best and the cheapest hives—the single-walled ones. A good many about him were unsuccessful in wintering. When he came to ascertain the cause he found the cellar was too light, and there were a good many apples and potatoes in the cellar, besides decaying vegetables. A cellar should be dark, and should have nothing but the bees, and, if practicable, they should be shut off by themselves. A vote was taken, and it was found that 17 wintered indoors and 32 outdoors.

The Question-Box was here introduced. "What is the best way to get propolis off the hands?" Some one suggested alcohol; others benzine. "Which are better—tight or loose bottom-boards?" Dr. Miller prompt-

ly responded "Yes." Nobody disagreed. "Which are better—Italians or hybrids?" Frank A. Eaton thought that hybrids are better than Italians, because they are easier to keep pure.

After a little unfinished business the convention adjourned to meet at Toledo, Dr. Mason being chosen president, and Miss Bennett being reelected secretary and treasurer.

USING INTOXICATING LIQUORS FOR RELIEF

When Severely Stung by Bees or Bitten by Serpents.

IS THERE A POSSIBILITY OF A MISTAKE IN THE MATTER?

I SUPPOSE that most of you have heard the statement that has been handed down from generation to generation in regard to the use of whisky and other intoxicants in case of snake-bites, and also as a means of saving life when the sting of a bee or many bees produces dangerous symptoms. You are aware that I have many times expressed a doubt in regard to the matter. In the *Century* for August, 1889, is an article from Mr. S. Weir Mitchell, a man who has devoted a large part of his life to the investigation and study of poisonous serpents. One can hardly help deciding, after carefully reading the article, that the writer is as well prepared, or perhaps better, to give us the truth, than any other man living. I will make one or two extracts. Here is the first:

> The first effect of venom is to lessen suddenly the pressure under which the blood is kept while in the vessels. Death from this cause must be rare, as it is active for so short a time. Any alcoholic stimulus would at this period be useful; but, despite the popular creed, it is now pretty sure that many men have been killed by the alcohol given to relieve them from the effects of snake-bite; and it is a matter of record, that men dead drunk with whisky, and then bitten, have died of the bite. For the consequences to the blood and to the nerve-centers which follow an injection of venom, there is, so far as I am aware, no antidote; but as to this I do not at all despair, and see clearly that our way to find relief is not by stupid trials of this sort and that, but by competently learning what we have to do. Moreover, we are in a position at present to say what not to do, and there is a large measure of gain in being able to dismiss to the limbo of the useless a host of so-called antidotes.

From the above we gather that people have been killed by mistaken kindness; that is, a tremendous dose of whisky killed the patient where the snake-bite alone would probably have done no serious harm. This very thing has occurred to me before. Please remember, dear friends, how many years it was the accepted custom to bleed a man for every ill that flesh is heir to. If he was suffering from lack of blood, they continued to bleed him all the same; and when the poor fellow died, the decision was, that even *bleeding* did not save him. The second extract is as follows:

> If the dose of venom be large, and the distance from help great, except the knife or cautery little is to be done that is of value. But it is well to bear in mind, that in this country a bite in the extremities rarely causes death.

Please notice from the above, that the serpent-bites in this country rarely produce death. Heavy doses of whisky do, however, *often* produce death. I myself witnessed the death of a little child who reached and took a teacup *partly filled* with common whisky, where it was carelessly left on a stand or table. Now, then, suppose a child has been stung so severely that there is apprehension that death may ensue; shall we give whisky enough to kill a *well* child, in our attempts to afford relief? You know it is popularly claimed, that, when one is bitten by a serpent, or stung severely by bees, he will bear enormous doses of whisky without even producing intoxication. Now, this may be true—at least, a good many physicians believe it to be true. But, dear friends, is it not possible that it is just as true, and no more so, than was the old doctrine of blood-letting, when any thing ailed the patient?

On our way to Mammoth Cave, the smallest and weakest horse in the lot began to play out, I decided, from exhaustion, and nothing else. The colored stage-driver borrowed a knife from Ernest, and cut and lacerated the poor animal's mouth, till its blood bespattered the muddy road; then he pronounced the cure complete, and drove on. During the operation the horse had rested enough so as to get breath, and therefore started up with temporary improvement. The darkey declared that the *blood-letting* gave the horse new strength. Now, I do not mean to be stubborn or contrary; but, dear friends, please let us be sure we are not following in the footsteps of the darkey; and, above all, let us remember that a *single dose* of whisky may consign almost any human being to a *drunkard's* grave, in spite of all that temperance workers and Christian exhorters can do to save him.

The fact that the *Youth's Companion* has, in a recent number, strongly advocated the use of whisky in tremendous doses, in case of snake-bites, does not change my opinion in regard to the matter in the least. I think the writer has simply followed the popular opinion. Although he tells us considerable in regard to snake-bites, he has not given the subject such thorough and complete investigation, by any manner of means, as has Mr. Mitchell in the *Century*.

PRICE LISTS RECEIVED.

We have just printed circulars for the following parties:
Levering Brothers, Wiota, Cass Co., Ia.
W. S. Pouder, Indianapolis, Ind.
J. B. Kline, Topeka, Kan.
S. W. Pike, St. Charles, Ill. Seeds, vegetables, and plants.
J. P. Connell, Hillsboro, Texas.
F. T. Hall, Lochiel, Wis.
I. C. Horton & Bro., Muskegon, Mich.
J. A. Thornton, Lima, Ill.
Other parties have sent us their circulars as follows:
J. B. McCormick, Fredericksburg, O.
J. T. Wilson, Little Hickman, Ky.
F. A. Snell, Milledgeville, Ill.
B. Davidson, Uxbridge, Ont.
J. W. K. Shaw & Co., Loreauville, La.
J. W. Buchanan & Bro., Eldora, Ia.
C. M. Dixon, Parrish, Ill.

CONVENTION NOTICES.

The spring meeting of the Missouri State Bee-keepers' Association will be held at Marshall, Saline Co., Mo., on Wednesday and Thursday, April 16 and 17, 1890, in the county court-room. Reduced rates at hotel, for bee-keepers, have been secured. A cordial invitation is extended to bee-keepers everywhere to attend, and especially those of Missouri. Essays from prominent men are expected. J. W. ROUSE, Sec'y.
Santa Fe, Mo.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 156.—*Is a double-walled hive, with a dead-air space, as good for wintering as one of the same kind with this space filled with chaff, providing that a chaff cushion or other absorbent be used above the brood-frames? Have you had any practical tests to lead you in deciding one way or the other?*

No. I learned this from others.
New York. C. P. H. ELWOOD.

Yes, a dead-air space is the best of non-conductors I have.
Illinois. MRS. L. HARRISON.

1. No. 2. No; and I don't need any to know that much.
Ohio. N. W. A. B. MASON.

We prefer a single-walled hive, yet we have chaff and double-walled hives in use.
Illinois. N. W. DADANT & SON.

I prefer to use chaff, for the reason that I have never succeeded in getting a "dead-air" space.
Wisconsin. S. W. GEO. GRIMM.

I should say better, provided you have the dead-air space.
Ohio. N. W. H. R. BOARDMAN.

I have tried both. I should prefer the chaff. Theory and practice both support this opinion.
Michigan. C. A. J. COOK.

I never experimented with double-walled hives; but to guess at it, I think I should rather risk the chaff.
Wisconsin. S. W. S. I. FREEBORN.

I use straw, and prefer it to either a dead-air space or chaff. As each separate straw contains a dead air-space, I have hundreds of dead-air spaces instead of one.
New York. C. G. M. DOOLITTLE.

I've had no experience, but I suspect an actual dead-air space is better than chaff. But in actual practice I doubt if walls are close enough to be air-tight, so I should prefer the chaff.
Illinois. N. C. C. MILLER.

I am not in favor of a fixed double-walled hive of any kind. Chaff packing that can be removed is much preferable. I have tested this matter very thoroughly.
Connecticut. S. W. L. C. ROOT.

I have had both kinds in my roof apiary for the last 25 years, and still have some of both. There is, perhaps, no difference between them. But I am positive in stating that my strongest colony in spring was never in a chaff hive.
Ohio. S. W. C. F. MUTH.

I never saw a hive with a *dead-air* space, neither do I believe anybody else ever did. Since it is necessary—in order to have a dead-air space — that every joint be perfectly air tight, this would require a glue joint at every joint. We have in an empty, well-corked, and sealed bottle, a dead-air space; and to get it in a hive it must be as perfect as in the corked bottle; hence I would consider it safer to fill the space with chaff, as the chaff itself assists in forming the dead-air space, or, in other words, many little dead-air spaces.
Vermont. N. W. A. E. MANUM.

I think not. Coarse packing-material in double-walled hives gives much less protection than does fine material; and as coarse material gives conditions nearer like those of a dead-air space than does fine, I reason that a dead-air space would be still less satisfactory. I speak from a large experience with chaff hives.
Cuba. O. O. POPPLETON.

I have had no practical experience in dead-air spaces. A dead-air space might be effective if it were really a dead-air space; and can you make a really effective dead-air space in an ordinary wooden hive exposed to all conditions of the atmosphere? We doubt it.
New York. E. RAMBLER.

We have three or four hives that happened to get into the field without having the space filled with chaff. They have been in use three or four years. I don't know but they are just as good as those that are stuffed with chaff. But we prefer to put in the chaff. There are a great many people living in cold houses, and don't freeze to death; but that doesn't prove that it is better to live in a cold house.
Wisconsin. S. W. E. FRANCE.

I am a charitable individual, but I sometimes feel tempted to "say things" about the brethren that keep talking about dead-air space in a hive. I should think it derogatory to my own wits if I should say that I had experimented with it much. Dead-air space in a hive is impracticable—summer suns are too hot, and cracks form too easily. If you have a double wall, pack it with something, of course. To be sure, a few boards set up around to break the force of a winter gale will help *some;* but what would be thought of the sanity of the individual who would prefer to crouch behind a few boards when he might just as well be in a house?
Ohio. N. W. E. E. HASTY.

Yes, sir, if your air space is absolutely tight. In our opinion, all chaff does is to perfect the work of the hive-maker. The chaff that would fill the walls of a hive weighs almost nothing, leaving the dead air as the main filling, after all; but it chinks up little cracks so the space is a dead-air space, not filled with circulating atmospheric air. I prefer a more solid wall, however, made thicker, and filled with some more solid filling, and painted dark red, because the dark color has no tendency to radiate away the heat of the bees in stormy, cloudy weather; and when the sun shines, which is more of the time than many think, it furnishes heat which the bees get, and thus aids them in keeping up the necessary temperature. Yes, I have had lots of practical experience in this line.
Michigan. S. W. JAMES HEDDON.

If a space of perfectly dead air could be secured it would be theoretically as good a non-conductor as we could secure by any packing. Practically this is never secured, for the reason that, even if the air space is perfectly inclosed, as long as one side is warmer than the other, currents of air will circulate, carrying heat to the other side. Packing

of any kind breaks up these currents of air; and the more they are prevented, the more perfect the non-conducting power. Try the experiment with some of your honey-pails. Fill two pint pails with hot water. Put each of them, with a thermometer, into a two-quart pail, and these into eight-quart pails. In one, support the smaller pails by blocks, so as to form dead-air spaces, which may be made almost perfect by tying paper tightly over the tops. In the other, pack the space between the larger pails with chaff, shavings, or, better, with wool or feathers. Open at intervals, and compare the thermometers.

Illinois. N. C. J. A. GREEN.

A year or so ago, when we were renovating our chaff hives by boiling them, we discovered that two of them had never been packed with chaff in the sides. Both of these hives had wintered bees every year just as successfully as the other hives having chaff packed in the side walls. The question that arose in my mind was, "Wouldn't all the rest of the hives have wintered the bees just as well if the side walls had not been packed in chaff?" If such is the case, it would have saved a good deal of expense; and to satisfy my curiosity I propounded the above question. It will be remembered that W. T. Falconer has sent out for years his Falcon chaff hives, the side walls of which, if I am correct, are simply dead-air spaced, without chaff packing. I feel pretty well satisfied, however, that a chaff cushion above the brood-nest is a good thing, whether the chaff in the side walls is necessary or not. ERNEST.

OUR HOMES.

Nevertheless, I have somewhat against thee, because thou hast left thy first love.—REV. 2:4.

As it is out of the question to have a nap on *Sunday*, just before dinner, on account of church services, I always take my nap just before going to church, say about ten o'clock or a little before; and I usually wake up about a quarter past ten, and then I am ready to go to church, bright, fresh, and vigorous, and no danger of getting drowsy. Well, the Sunday about which I propose to speak to-day was communion Sunday. I did not think of it, however, until I came to take my place in church, and saw the table with its white spread. In a few moments more my attention was drawn from worldly matters by the reading of our good pastor. It was from the second chapter of the book of Revelation. He read as follows:

I know thy works and thy labor and thy patience, and how thou canst not bear them which are evil; . . . . . and hast borne, and hast patience, and for my names's sake hast labored, and hast not fainted.

The very first words took a strong hold of me. It seemed as if the Savior had directed my good friend who was in the pulpit to read these words for my special benefit. They were exactly what I needed. Sometimes when I am sorely discouraged and cast down I repeat to myself the little text, "Blessed are they which do hunger and thirst after righteousness;" and it gives me comfort; for, no matter how bad I am, I believe I really and truly love righteousness. I am a diligent worker also; and in some directions I believe I have a great amount of patience; and I think, too, that I oftentimes bear a good deal and have patience for Christ's sake. The concluding words, "Hast labored and hast not fainted," gave me comfort; but at the same time there was a foreboding in them that something else was coming. I knew that, on this special morning, I needed rebuke and reproof; and I just began to realize that my mind was full of a great lot of worldly matters that had no business there, especially on this *communion* Sunday; therefore when the pastor went on and read the next verse, which I have selected as my text, it came upon me in such a way as almost to startle me:

Nevertheless, I have somewhat against thee, because thou hast left thy first love.

Then he read the fifth verse:

Remember, therefore, from whence thou art fallen, and repent, and do the first works; or else I will come unto thee quickly, and will remove thy candlestick out of its place, except thou repent.

I hope, dear readers, that you will get your Bibles and read the whole of this second chapter of Revelation. I wish now to digress a little to tell you just why these words took such a hold of me. The first verse of the chapter says, "Unto the angel of the church of Ephesus write;" and it was John who was directed to write these words. Our pastor explained to us that the word "angel" might mean minister, so that John was simply to direct the pastor of this church at Ephesus to speak to his people in the way I have quoted. Our pastor was speaking these words to his people, and they were just the ones *I* needed. Had he looked me full in the face, and directed his whole talk to me, it seemed as if it would have been most exceedingly appropriate for my case.

Please let us go back to Our Homes for Feb. 15, where I spoke of something that had clouded my spiritual state. I told you, also, of an instantaneous and wonderful deliverance. A week after that deliverance, I also wrote that, as yet, no trace of the cloud had darkened my spiritual vision. There may be some among my readers who do not care to follow me in this matter of struggles against temptation. There may be some who think it childish. If so, I hope these friends will have charity while they skip past what I have to say this morning, for I feel it to be my duty to go on, as I know from the letters I receive that there are *others* who are fighting manfully, and fighting *inch* by *inch* against temptation and Satan. I know, too, there are at least some who have become almost discouraged, because they have fallen *again* and *again*. I think there are some, also, who, after having been redeemed by the blood of Christ, have, in the language of our text, *left their first love*, and strayed away into the bondage of sin, and into Satan's snares. To *such* I want to speak to-day, because I be-

lieve my experience may be helpful to you. Let me illustrate what I have in mind by some *familiar example* in the way of fighting temptation.

Thirty years ago I was in the habit of taking a glass of beer now and then, and perhaps I might as well say that I had become quite fond of lager beer. Now, although it is certainly 25 years since I have tasted a drop, the old appetite comes back yet with astonishing power, once in a while. When I hear my German friends talk about their social glass of lager, a great many times I have said in my heart, "Oh, how I do wish it were not wicked to tell them that I love their favorite beverage too, and to ask to be one among them, and drink with them!" In some respects I am ashamed of this confession, dear friends, but in others I am not. I love to get acquainted with the German people, and I want to bring them to the Savior that I have found, and I am *glad* to join in every thing that is innocent and harmless, in the line that Paul suggests when he says, "I am made all things to all men, that I might by all means save some." Well, now I want to tell you that, when I am alone in our great cities, Satan often whispers to me, "Why shouldn't you have a glass of beer now? What harm would it do? There is not a soul here that knows you, and no one need know a thing about it. There is *certainly* no danger that you would ever drink more than is good for you." And while he is whispering these suggestions I look into the saloons with their attractive and inviting placards. At just such times I have said to myself, "If there were *nothing wrong* about it I would give a *whole dollar* for just one single glass of lager." Now, please do not understand that I have ever thought of *doing* such a thing. It would be wrong for me to waste a whole dollar in the purchase of *any thing* in the way of drink, *as a beverage*, that the world has ever furnished. The money that I call my own is not mine to use in any such foolish way. I know there are people who pay several dollars for a bottle of wine; but *I* should be ill at ease with such a class. When such suggestions come (in some way they always seem to come most when I am in an unknown city, and among entire strangers) I have always, sooner or later, said, "Get thee behind me, Satan;" but my temperament is somewhat imaginative, as you may know, and I am afraid I do not rebuke Satan *soon* enough. It is this same old temptation that I spoke of in regard to the machinery of the universe. The study of the machinery employed by the *evil one*, somehow or other has something fascinating about it to me. Now in regard to the danger that has been threatening me: He who has money and property intrusted to his care usually meets temptations that other people do not have to meet. While in California I saw some beautiful gardens belonging to a man of wealth, and people would say to me, "Mr. —— paid $10.000 for that five acres of fruit, just as it stands now." David C. Cook gave *$60,000* for his California ranch; and now he is investing ever so many thousand more to make it a little paradise here on earth. In another case an ideal orange-grove in full bearing presented such a beautiful sight that a man of capital paid $5000 for it, cash down, just that he might be able to say that such a thing of beauty was his own. Our business is getting to be, as you know, one of considerable magnitude. Single purchases of more than a thousand dollars are now comparatively common. Sometimes such a purchase is made by the demands of the business, when I hardly know any thing about it until I see the bill. It is all right and proper. The boys are beginning to exercise so much judgment and wisdom in managing these matters that I do not feel as anxious now as I used to in regard to them. In order to make our extractors all of one sheet of tin we were obliged to get our tin imported from the old country, and I had almost forgotten about it until the bill came through the mails, for over one thousand dollars. John had made the purchase, and had made it wisely. Our new printing-press, that is making us all happy, was purchased entirely by Ernest. I was not even introduced to the agent until the purchase was completed. I was busily occupied at the time, and I told Ernest that, as he had studied the matter well, and had it all in hand, he should go ahead and make the purchase. Although the press was valued at $2500, we have every reason to think that he made a careful investment. Now, in one sense this property is ours to do what we please with it; in another, *it is not*. *My* way of putting it would be this: It belongs to *Christ Jesus*, the Lord and Master. We are stewards to hold and use it, and to invest it as best we can for *his honor* and *glory*. I think, dear friends, you all pretty nearly agree with me, only perhaps you might put it in another way, say like this: You, my friends and patrons, have intrusted me with your money. You have desired me to publish a good bee-journal with a part of it; with the other part you wish me to furnish implements and supplies for bee culture, and to look after the general good of our industry. You do not wish me to use the money that I thus accumulate, for gambling or even for speculating. I think that most of you would feel a little hurt, and may be you would feel like finding fault, if I should pay $10,000 for an orange-orchard in California or Florida. Such an investment would not do *you* any good, and might do *me* much harm as I am at present situated. It would not be in harmony with my profession; therefore my duty to myself and my duty to my fellowmen demands that I resist such temptations. In this light it would be foolish and wrong for me to pay a dollar for a glass of lager beer, even if there were no intemperance about it. But the worst obstacle in the way of the latter is the guilty conscience *I* should have after having done such a foolish thing. Suppose I should preach temperance and Christ Jesus while *at home*, and then when I am off alone in the night in some great city, yield to that old appetite, thinking no one would know it.

For two or three weeks after my deliverance, as I told you in my Home Paper of

February 15, no glimpse of that old temptation came near. As the days passed I began gradually to forget about it, however; and when I became so much absorbed in the great crowd of business that I began to forget or neglect *daily prayer alone by myself*, before I knew it this old shadow began to creep slowly back; and it came in the line, too, with what I have said in regard to giving a dollar for a glass of beer. Satan approached me one day, almost unawares, and began something in this way: "Mr. Root, suppose you could, by money, purchase a *fair* and *clear title* to this 'cloud land' that has been disturbing you."

What I should have done at this point was to have said, "Get thee behind me, Satan. My business is here *on earth*, and not up in the clouds. I have nothing to do with investments in cloud land. Get thee hence!"

That was not what I did, however. The subject had never presented itself in just that light before, and I fell to thinking of the orange-groves and the beautiful ranches that some of the rich men purchased in California, and then, just for the fun of it, I began speculating as to just what amount I would be willing to pay, *provided* I could have just what I fancied, and in a way that would wrong no one. Satan was keen enough to make the most of his advantage, and he went on, in a very smooth and plausible way, "You would probably give a thousand dollars, without any hesitation, would you not, friend Root? Well, now, would you not give *five thousand dollars?*" And then he began explaining how it might all be managed without any thing derogatory to the character of the Christian. I do not know how many minutes I spent in building air castles in the clouds, in just this way. Perhaps it was not more than a second or two—no matter. The brief parley did me harm. Old temptations came trooping back in rainbow colors, and for a brief moment I was ready to—to—what? Sell my "birthright" for a "mess of pottage"? No, thank God, not quite; for the old prayer, "Lord, help," came to my aid. But I felt at once that my bright spiritual vision was dimmed, stained, and soiled by sin *in contemplation*. The brief glimpse that Satan held up haunted me. I once met in our county jail a man who had set his store on fire in order to get the insurance. Said he, "Mr. Root, I first began planning as to how the thing might be done, without the remotest idea in the world of *doing* such a thing. I kept saying to myself all along, 'I would not be guilty of such a thing for worlds;' but yet there seemed to be a mysterious fascination in speculating upon and going over the ground, and planning on how it might be done so as to escape detection." The end was, that *he set the building on fire*. Please believe me, friends, when I tell you that a great part of the crime that curses our land, and sends human souls into the bottomless pit, starts in just that way. I turned away from Satan, thinking that I had not been harmed, but I had. A fence, when it has been once broken down and repaired, is rarely as good as it was before; but I did not think very much about it until that communion Sunday. Now, friends, I have been emphatic and vehement in urging you to *attend church*. I have urged again and again the importance of being united with some band of Christian people. Most of you have a good deal of faith in your old friend A. I. Root; but I tell you, friends, it would not be a *safe* thing for *me* to stay away from church. When those searching words from God's holy book took hold of me, at first it seemed as if there was not any help for it. The best I could do would be to keep my mind on the sermon as well as I could, and go home without any spiritual blessing. I *have* attended church, and remained through the service in a dead, dull sort of way, without very much heart in it, and, as a result, went home in a low state spiritually, and may be went through the week with a dead kind of religion that was more a form than any thing with life or heart in it. On this particular morning I felt tired of the unceasing conflict. Then the words of the text came to me again—"Nevertheless, I have somewhat against thee" Why? "*Because thou hast left thy first love.*"

When the above struck me so forcibly, and kept ringing in my ears for some time afterward, I had no thought that the pastor was going to choose it for his text. He read the whole chapter, or the greater part of it, but I got hold of that one verse, or, rather, it got hold of me; and when he announced it as his text I was startled, and it seemed again as though there were a providence in it. It seemed as if God had put it into his heart to read this chapter, and to preach from this text for my special benefit.

You will notice that, while the words are a reproof and a rebuke, they are exceedingly kind. The dear Savior seemed to have in mind just what I had done for his cause in times past; and he seemed to *grieve*, almost, as it were, because I had neglected him (my first love) and turned away for the things that Satan had produced and held up. In my earlier experience, one of my favorite prayers when tempted was, "O Lord, may *thine image* take the place of these things that would lead me astray and do me harm. Help me to love *righteousness* and *purity;* and may thoughts of *thee* crowd out and *keep away* all that is sinful and unholy." It seemed that morning as if Satan stood beside me. It seemed as if he plead with me as he did with the Savior himself when he said, "All this power will I give thee, and the glory of them." With the thoughts of the text, and the earnest words of the pastor, came visions of reservoirs, water-pipes for irrigation, beautiful gardens; and a host of other things of a worldly character seemed crowding forward and insisting on a place in my thoughts. Then the communion-table near by! how could I partake in my present frame of mind? I knew I was *bad* and *wicked;* but notwithstanding the victories of the past, some way I felt discouraged and helpless. Satan whispered again, "What is the use of praying about being good when you know you *do not want* to be good?" The matter was tangled up,

and I could not understand it; but I could fall back on my old brief prayer that had been breathed so many times before—"Lord, help!" With bowed head, I prayed as I have seldom prayed before, almost during that whole sermon. At one time Christ Jesus seemed to be gaining ground; and then worldly matters (with that "cloud land," temptation, always surmounting the rest) seemed to get between me and my old and tried Redeemer. Before the sermon ended, however, Satan, with all his machinery, began to retreat; and even *before* victory had come, came the bright faith that it *would* come if I kept on praying, and pleading the promises. Before communion the conflict was ended, and peace reigned in my soul. I was *anchored*, and at rest.

Then the devil leaveth him, and, behold, angels came and ministered unto him.—MATT. 4:11.

How about the cloud-land investment, for which, during the week, I had felt at one time almost willing to risk five thousand dollars? May the Lord be praised, I did not want it at all. I would not give even one copper for it, even had it possessed all the advantages Satan had pictured and held out to me. I could say honestly and truly, as a little child might say, "No, thank you, I have no use for any such property at all. I am happy and contented without it."

Some of you may say, "What is the use of making one's self miserable all this time by being deprived of this, that, and the other? If I wanted a glass of lager as badly as you wanted it, I would drink it and done with it; and if I wanted to invest five thousand dollars in something I took a notion to, if I had the money, I would make the purchase. If people didn't like it, I would tell them it was *my business* and *not theirs*." Well, friends, there are people who do just that way. There are people, too, who forget their religion; forget the debt they owe their fellow-men, and, under temptation, set fire to buildings, or run off with other people's money that is intrusted to their care. There are people who sell themselves as Esau did, simply because Satan whispers it is worth the price. On the other hand, in the Bible there are promises to those who resist evil and cling to the good. Here is one of them:

He that overcometh, the same shall be clothed in white raiment; and I will not blot out his name out of the book of life, but I will confess his name before my Father, and before his angels.

And here is another:

And he that overcometh and keepeth my works unto the end, to him I will give power over the nations.

Another still:

To him that overcometh will I grant to sit with me in my throne, even as I also overcame, and am set down with my Father in his throne.

When I first united with Christian people I was a good deal prejudiced against forms, ceremonies, ordinances, etc. Communion was a sore trouble to me. It seemed to me as if it were going through a formal ceremony that had no particular significance in it. As years passed, however, I began to comprehend that it was a sacred duty—a sort of reminder—that in one sense it was to the Christian somewhat as the Fourth of July is to the descendants of the Revolutionary heroes. Slowly I began to feel that it was a serious and sacred matter to commune with Christians, and I began to be a little afraid of the communion season—or, rather, if you choose, afraid of *myself* when communion Sunday came around. Of late, whenever I see the table spread, it makes me think of David's little prayer: "Create in me a clean heart, O God, and renew a right spirit within me." I have never been absent a communion day—that is, when I am at home. I should be *afraid* to be absent. Yes, I should be afraid to stay away from church if it were a possible thing for me to get there. I presume you know why. I am afraid I should backslide or slip back. I remember vividly what the old life was without a Redeemer, and I hope that, whatever shall happen through life, like Christian in the Pilgrim's Progress (in the Slough of Despond) I may always be found struggling toward the *further* shore.

The moral to this experience seems to be this: "Let him that thinketh he standeth, take heed lest he fall;" and let him that recognizes that he is a sinful creature, and prone to wander (whether it be in the line of tobacco, drink, profanity, or sin in any form), be *regular* in attendance at church services. Let him be careful how he neglects daily prayer alone by himself. I have felt all during this week as if I wanted to *tell* of my deliverance. The fragments of an old hymn that I learned at my mother's knee in childhood come floating back through the forty years or more since I first heard them. I can not find the hymn in the books now, but I think it commences something like this:

Come, saints and sinners, hear me tell
The wonders of Immanuel;
I'll point to his redeeming blood,
And say, "Behold the Lamb of God."

Another verse starts out:

I wonder why old saints don't sing,
And praise the Lord upon the wing,
And make the heavenly arches ring
With loud hosannas to our King.

Another one, perhaps the last of all, contains these two lines:

Then will I tell to all around
What a dear Savior I have found.

The last thought is the one I want to leave with you in closing:

If you have no temptations to meet; if it is easy for you to love your neighbor and to fulfill the requirements of the gospel, you perhaps do not care especially for this Home Paper; but if you have difficulties to meet; if you have trials and temptations to fight against, then, my dear friends, let me tell you that there is no safety outside of the Rock Christ Jesus. Do not, I beg of you, think that following Christ is going to debar you from any true enjoyment that this world has to offer. Old age has no terrors for him who is anchored to the Rock Christ Jesus. Although I am now past fifty, I am sure that, *never in my life*—not even in my boyhood—have I had the keen enjoyment and relish in every thing going on round about me that I have now. I love business and I

love progress; I love education; I love mechanics and machinery; I love gardens and greenhouses; I love churches and I love Sunday-schools; I love Christian people as I never loved them before; and I love *you*, dear friends, whom God in his infinite mercy has seen fit to permit me to talk to, and to cheer and to encourage with these lines; and I want to see you hold fast to the faith, and not faint. When our pastor read the words, "Lest I come unto thee quickly and *remove thy candlestick out of its place*, except thou repent," it occurred to me at once that, if I should go on stepping back, I should lose my place among Christian people; I should lose my privilege to speak in these Home Papers; faith in Jesus Christ would be gone, and then I should have what Satan has to offer—that and nothing else, and *he* is always offering something that is *not his to give*. "When he speaketh a lie, he speaketh of his own: for he is a liar, and the father of it."

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

QUITTING ALL KINDS OF "MEANNESS."

Will you allow me thank you for the great blessing which has come to me through your writings against the use of tobacco? I have been chewing and smoking for at least 20 years. To quit seemed too much for me, although I had been wanting to do so for quite a while, and had made one or two attempts, but could not get the consent of my mind fully, until at last I was convinced by you that a man *can* quit his "meanness," and, as Sam Jones puts it, "*must* quit his meanness;" and when I understood it I found it easy indeed to stop short; and I have not smoked or chewed one crumb of tobacco for about 12 weeks, and am hearty and healthy, weighing more than I ever did. Oh how many people there are, who want to be called "nice folks," who are using the cursed stuff!

I was under its power for so long I thought I could not let it go; but it was all knocked out of me by one stroke; and when I am tempted I am now able to say, "No, thank you." Bro. R., don't take back what you have said against tobacco; and make *no* apology to any one using it; for, indeed, it is a great sin; and shall we be afraid to rebuke it? I shall not be afraid, for I know the evils thereof. I have been reproving our two ministers here, who are users of tobacco. I talked to them kindly, in strong language, saying that the chewing and smoking of tobacco is a very mean, dirty, sinful habit. Bro. C. said it was recommended to him by a physician thirty years ago, and he had used it ever since. He knew it was a very dirty practice, yet could not see that it was a *sin* to use it, and did not think it was. Said I, "Very well, my good brother. I think you have not given the matter much thought. Let us look at it for a moment. We adults look to you for instruction by your practice as well as precept. Now, for our children what is the example you set? I tell my four little children (oldest ten), that I quit smoking (as I never chewed before *them*) because it was a sin, and that no good man or woman should use tobacco. Now, they think as we do—that the *preacher* is a good man, as he prays for them in our home. Surely it can't be that *he* chews and smokes before them? Yes, he *does*, and he ought to 'quit his meanness.'"

A French chemist claims that he has traced the cause of many cases of poisoning from nicotine, absorbed from tobacco smoke in the *meat-market*; and he avers that no amount of cooking will destroy the poison. So we are not only killing ourselves by its use, but are liable to kill others as well. T. J. ANDERSON.

Joseph's Mills, W. Va., Feb. 5, 1890.

Friend A., I am exceedingly glad to know that you have been delivered from the bondage of the tobacco habit; but, dear brother, please let us be careful in our criticisms of others who have not seen fit to do as we have done. I am glad you did remonstrate with your minister; but let us carefully and prayerfully prepare ourselves for such a task, and be sure that we choose such words as will do the most good, and not do harm. There is only a very narrow line that separates between saying just enough and saying just a little too much. When we each and all commence in real earnest to "quit our meanness," then shall a great reform be ushered in.

A DAUGHTER TAKES A PLEDGE FOR HER FATHER.

My father's name is Alexander Carruthers. He has stopped the use of tobacco in all forms, for good. He has stopped from what he has read in GLEANINGS. Please send the price of your smoker; and if he ever uses tobacco he will pay you.

SUSIE CARRUTHERS.

Osaca, Ont., Can., Jan. 27, 1890.

May God bless you, Susie, for getting your father to take the pledge and for sending us his name. Most gladly do we send the smoker, and may more of the daughters of our land take courage from what you have done, and go and do likewise.

TOBACCO, AND ITS EFFECT ON THE MIND.

I have two boys, almost young men, who don't use tobacco in any form. I have had a fearful experience with it. It affected my mind to that extent that I was forced to quit my trade. I quit its use, but it took a long time to get over its evil effects. I look upon you as a benefactor to the human race; and may your life be spared beyond the ordinary length allotted to us. F. M. JEFFREY.

Waynesville, Ill., Feb. 20, 1890.

I am thankful for the Tobacco Column and the influence it is exerting for good in that direction. It seems to me that one of the greatest services of Christianity, properly applied, is to lift men and women out of every kind of uncleanness and bondage to injurious physical habits, "so that, whether we eat or drink, or whatsoever we do, we shall do all to the glory of God." C. F. PARKER.

Mentone, Ala., Feb. 7.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 15, 1890.

And one of the elders answered, saying unto me, What are these which are arrayed in white robes, and whence came they? And I said unto him, Sir, thou knowest. And he said unto me, These are they which came out of great tribulation, and have washed their robes, and made them white in the blood of the Lamb.—REV. 7: 13, 14.

AN APICULTURAL INSTITUTE.

OUR friends in Germany have struck upon quite a novel method of imparting a practical knowledge of apiculture. Beginning on the 8th of next April, and continuing 10 days, Prof. H. Strack, at Flacht, Germany, assisted by several of the most eminent bee-men of that country, will hold what we might call a convention, in order to illustrate practically modern apiculture. The lectures will be fully illustrated by the use of about all the implements in bee culture which are mostly used to-day. We notice the name of C. J. H. Gravenhorst among the helpers of Prof. Strack. We are of the opinion that such an institute in this country would go far toward illuminating the minds of the "old fogies," and diffusing more widely a general knowledge of our industry.

SENDING ALFALFA FROM COLORADO TO NEW YORK CITY.

WE take the following from the Denver *News:*

The shipment of a carload of baled alfalfa from Rocky Ford to New York is a matter of no small import to Colorado. The freight is $180, but even at this rate the alfalfa will cost but $19 a ton at New York, as against $18 to $20 for timothy. The shipment is an experiment for the purpose of feeding milch cows, little being known practically of the value of alfalfa as a fodder food for cows. It is also a fact that Messrs. Dye & Son, of Rocky Ford, last week shipped $10,000 worth of alfalfa seed to New York, a large amount of seed being produced about that town. Whether alfalfa can be as successfully grown in New York State as in Colorado is a question, since the plant is indigenous to high, dry climates. With a more favorable freight rate, however, the *News* is not afraid to guarantee that Colorado is able to produce all the alfalfa which New York may be able to consume, and if a trade of this kind can be opened and maintained it will be of the largest possible benefit to the farmers of our State.

Such items are interesting to bee-men, because it indicates to what extent alfalfa may ultimately be grown.

"STEPPING HEAVENWARD."

ON my recent trip to Wisconsin I discovered, at my first place where I had to wait for a train, that I had not only missed taking along some reading-matter laid out for the purpose, but I had also forgotten my eye-glasses. I soon replaced the latter, and looked into a bookstore to see if there was any thing there I wanted in the way of reading. My first thought was, that I should not care for any thing they had. Pretty soon, however, conscience rebuked me for my selfishness; and then I said mentally, "Lord, what hast thou for thy servant to do during these coming two hours?" Almost immediately, by way of answer, as it seemed to me, my eye fell on a paper-covered book with the title at the head of this. I read the book years ago; and after our good friend Anna B. Quillin recommended it so highly I at once decided to read it again. Here was the opportunity. It was a good-sized book, fully as large as these pages, double column, closely written matter of 112 pages, illustrated by toward a dozen appropriate pictures. When the bookseller said the price was 25 cents I mentally thanked God that somebody had thought fit to put the book in this cheap form for the great reading public. Before the two hours were up I felt that the prayer was already answered. God had shown me how I could help and benefit you all by recommending and scattering widely this work. The publishers have sold me 100 copies for $15.00. I propose to furnish them to you at 18 cents each. Three cents will a little more than cover the cost of freight, wrapping up, mailing, etc. If wanted by mail, 22 cents each. Now, friends, after you have read the book, and been helped in your struggles on the way from earth to heaven, recommend it to your friends and neighbors—lend it right and left until the book is worn out. What more worthy work can any human being be engaged in than assisting his fellow-men in their struggles and trials in "stepping heavenward"?

APICULTURE AT THE PARIS EXPOSITION.

A FRENCH journal published at Amiens, France, entitled *Le Rucher* (*The Apiary*), for February, comes to us devoted entirely to the display of apicultural implements at the late Paris Exposition. The countries represented were Austrian Hungary, Belgium, Spain, United States, Great Britain, Greece, Italy, Duchy of Luxemburg, Mexico, Roumania, Russia, and Switzerland. Concerning the display from the United States, we translate from the columns of *Le Rucher* the following, which, if coming from an American journal, would not look well; but under the circumstances we will try to overcome our natural modesty and let our readers know what the friends in France think of us as bee-keepers and as manufacturers:

The collective exposition of American bee-keepers, under the direction of Messrs. C. V. Riley and N. W. McLean, is the most important of all, and, at the same time, that which teaches the greatest lesson. The hives exhibited are, principally, masterpieces in combination and execution. Open them, and see if any thing is left to be desired; see what admirable joinery! how every thing fits together, and how easily it is taken apart! how smooth the wood is, and well planed! One stands confounded in the presence of this material made of wood. And note well that all the hives that go out of any one factory are scrupulously like those shown at the exposition, for a great part of the pieces which compose them, if not all, are made by special machines, as one might well suppose, working always in the same manner. There are in America immense factories for making hives and apicultural implements, which have in their work-rooms all kinds of machines, which can not be found in France, of which the daily output, astonishing to us, gives a vivid idea of the advanced state of apiculture in the United States. Thus, for example, the factory of Mr. A. I. Root, in Medina, O., not to mention others, contains machinery moved by a 90-horse-power engine. It can make daily from 20,000 to 50,000 sections and 1000 hives, without counting an enormous quantity of other work. This establishment sends out daily a carload of goods, and in the busy season a carload and a half. Forty years ago bee culture did not exist in the United

States; but to-day it is far ahead of that in any other country. It must be mentioned, however, that this relatively rapid development is favored by the honey resources of the country, which are considerable. I must add, that the American exposition is, so to speak, a triumph for movable-frame apiculture, and that those bee-keepers who did not visit the exposition lost much.

THE DOVETAILED CORNER.

MR. FRANCIS DANZENBAKER, of Washington, D. C., has just placed an order with us for 1000 of his Dual hives, the same being dovetailed at the corners. The hives take the crosswise L. frame, the upper story being telescopic, shutting down over the lower. Mr. Danzenbaker, it will be remembered, is the one who first called our attention to the dovetailed corner, and in a small order he placed with us a year or so ago he demonstrated the possibility of making a neat and beautiful dovetailed hive-joint. Mr. D.'s advertisement appears elsewhere, and we take pleasure in saying that he is fully competent to do all he agrees. He will leave us a few hives, to accommodate some of his customers who may prefer, on account of freight rates or otherwise, to order direct of us.

SPECIAL NOTICES.

H. A. MARCH'S JERSEY WAKEFIELD CABBAGE SEED.

When we bought over 20 lbs. of *stock* seed of H. A. March, we thought we should have enough to supply our friends for at least two years. There has been, however, such a great demand for March's *stock* seed that we are already sold out, and the best that we can do for our friends is to give them March's ordinary Jersey Wakefield. As this, however, is probably equal to any thing in the market, we think no one will be disappointed. We have, however, still about 25 lbs. of March's Fottler's Brunswick *stock seed;* and as the season is getting well along for the Wakefield, the above will probably answer just as well, or better. In making your orders, please remember that the only *stock* seed we can now furnish of March's growing is Fottler's Brunswick.

COMB FOUNDATION AND BEESWAX ADVANCED.

We are compelled again to advance the price of comb foundation, because of the advance in beeswax. This has been slowly increasing in price for two years past, with slight fluctuations. We have to pay now, on an average, 4 to 5c. per lb. more for wax than we did two years ago. We dislike to raise prices, and have been holding off, working on smaller margins, hoping wax would go no higher; but it is impossible longer to sustain catalogue prices. We will pay for average wax, delivered here, 24c. cash, 27 in trade, and the same will be sold at 30c. per lb. for average, and 35 for selected yellow. Price of all grades of comb foundation is advanced 5c. per pound, and the revised table is as follows, taking effect March 1.

Packed in neat boxes, with tissue paper between every two sheets.	Heavy brood 4 to 6 ft to lb	Light brood about7 ft to lb	Thin surpl's about 10 ft lb	Extra thin about 12 ft lb
1 to 10 lbs. per lb	45	48	55	65
10 " 25 " "	44	47	54	64
25 " 50 " "	43	46	53	63
50 " 100 " "	42	45	52	62
100 " 200 " "	41	44	51	61

NEW HONEY-EXTRACTORS READY.

Last November we announced, in this column, a number of improvements, anticipated in the construction of our Novice Honey-Extractors. The improved machines are now ready for delivery. To repeat, the improvements are as follows: The honey-gate is increased in size from 1⅛ inch bore to 1½ inch. The can is made entire (except bottom) of one sheet of IXX tin, instead of IX tin as formerly. The can is 2 inches deeper, allowing the revolving frame to be set lower; thus preventing honey from going over the top edge. The correct price, as given in our 1890 catalogue, is $7.00 each for Nos. 1, 2, 3, 4, and 5; $7.50 for No. 6, and $8.00 for Nos. 7, 8, 9, and 10. With 60 lbs. room below, 50c extra. With 100 lbs. room below, $1.00 extra. Any of the numbers will be furnished with the upright gear, instead of the Novice, for 50c extra.

THE VAN DEUSEN REVERSIBLE FRAME.

On page 514, 1889, we described and illustrated the VanDeusen metal-cornered frame, more to find out whether there was a demand for such a frame than any thing else. Since that time there has been considerable of an inquiry; and it is only within the last few days that we have been able to supply them. They are reversible and at fixed distances, and can be handled about as easily as the metal-cornered frames and more easily than the all-wood suspended frame on wood rabbets. In the opinion of your humble servant, Ernest, this is the best *fixed* frame he has yet seen. Allow me to say, as I have already said, do not be too enthusiastic, and purchase a large quantity. Try a few, to see whether you like them. We can furnish the frames complete, with reversible corners, in the flat, at $2.50 per 100, or $22.50 per 1000; the same put up, per 100, $3.00. These frames have wide and thick bottom and top bars. The reversible corners themselves we will sell for 30 cts. per 100; in lots of 1000, less 10%; but to use them satisfactorily they must be let into slots in the end-bar, and the wood part of the frame must be constructed specially for them. These reversible frames may be used in all Dovetailed hives—in fact, in all Langstroth hives having unbeveled edges, by nailing a piece of strap iron or tin on the bottom inside edge of the hive. By the use of L tins they may be used in the Simplicity. They are a standing and not a hanging frame.

AIDS TO THE EYESIGHT.

Since I have been obliged to use spectacles almost constantly while reading, I have taken special pains to test glasses of different values. And now while I have a pair of spectacles with gold bows that would ordinarily retail for eight or ten dollars, and a pair of the best eye-glasses that would sell for from five to eight dollars, after careful and repeated tests I am sure I can see *just as well* with the eye-glasses that are to be seen on our ten-cent counter. Very likely it is owing somewhat to the fact that my eyes are good and strong, having no trouble except the ordinary elongation of the focus, from age. The matter that I have spoken of before often surprises me; namely, that spectacles are cheaper than lamp-oil. In going to the greenhouse mornings I can see where the thermometer stands, in two ways. One is by lighting a match and bringing more light on the subject; and the other is by the use of my ten-cent eye-glasses. This, of course, occurs when it is almost light enough for me to see with the naked eye. A great many times, when reading your kind letters I find I have to do one of two things—light a lamp or get out my eye-glasses. By the aid of these cheap eye-glasses I can read just as easily as I ever did in my life. The principal point, however, that I want to make to-day is this: I can not find these cheap eye-glasses advertised *anywhere* in our catalogues. They are nicely arranged in a neat little drawer made for the purpose, divided off so as to have different ages by themselves, and yet there they have stood for years, for aught I know, having a very limited sale, because nobody knows we have them. If you want a case to go with them we have some very pretty leather ones for only five cents more; but I prefer to use mine without the case. I simply put one in a little pocket in every one of my coats. This little pocket is right above the large one on the right side, and is sometimes called the "railroad-ticket pocket." With an eye-glass in the pocket of each coat, I feel quite happy and independent. When any thing comes up suddenly anywhere, I can get my finger on them in a twinkling: and if they are lost I am only 10 cents "out of pocket." If wanted by mail, send 3 cts. extra for postage and packing.

WIRE NETTING ADVANCED.

We hereby cancel all prices made on wire netting previous to this date. The prices on the inside cover page of this number were printed before we were advised of the advance; hence they are null and void. New prices are as follows: On 2-in. No. 19

netting, 4 ft. wide (the regular poultry size), add 75c per roll, which will make the price for less than 5 rolls, $4.75 per roll; and for single rolls shipped from New York or Chicago, add 25c for cartage; 5 to 10 rolls, $4 50 per roll; 10 to 20 rolls, $4.25 per roll. The discount on the list prices, pages 2 and 3 of our netting catalogue, will be, for less than 5 rolls, 68½ per cent; 5 to 10 rolls, 70 per cent; 10 to 20 rolls, 70 and 5 per cent. On cottage fencing, page 8 of the netting catalogue, new discount is, for less than 5 rolls, 60 per cent; 5 to 10 rolls, 62½ per cent; and 10 to 20 rolls, 65 per cent. No change in price of web fencing at present.

The reasons for this advance are, briefly, as follows: Wire rods, from which the netting is made, were, till about 6 months ago, nearly all imported from Europe. Since then the price of wire rods has advanced so much that American rods are largely used, but at an increased cost to makers of netting, of about 40 per cent. Notwithstanding this increased cost of materials of 40 per cent, we advance the price of netting only from 15 to 20 per cent. We regret (for the sake of those who buy netting) to be obliged to advance prices; but there is this cheering feature about it, that, instead of importing wire rods, we are using those produced by American workmen, and thus indirectly furnishing employment to many hundreds of our fellow-citizens.

Those who have a netting catalogue may have a new discount sheet on application. If we knew who you were we would mail you one any way.

March 5, 1890.

FOR SALE.—World type-writer. Little used, $4.80. W. W. CULP, Pottstown, Pa.

FOR SALE.

A fine lot of spider, or Grayson Lily Bulbs, which I will sell. Small bulbs 25c, large ones 50c. Very beautiful and fragrant, pure white. I also have 40 or 50 stands of mostly Italian bees for sale. Will sell Queens in April. Would exchange bees for registered Jersey heifer. S. G. WOOD,
4-9db BIRMINGHAM, JEFF. CO., ALA.

McLane, - J. E. NEYLAND, - Erie Co., Pa.

Breeder of choice Red Caps and Andigoloes eggs, $3.00 per 15. Golden Wyandotte's and White Plymouth Rock eggs, $2.00 per 15.

In responding to this advertisement mention GLEANINGS.

PURE P. ROCK EGGS, $1.00 PER SETTING OF 13. For Sale by
6d **L. C. AXTELL, Roseville, Ill.**

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS,

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." *(Mention Gleanings.)* 1tfdb

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

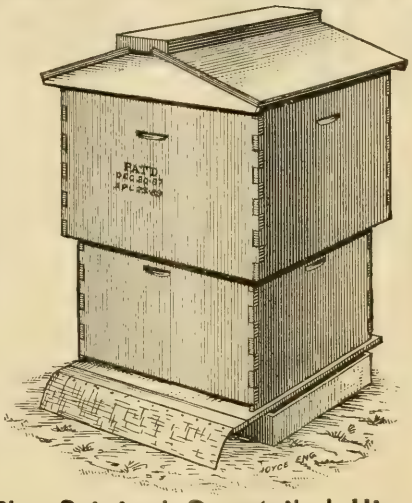
Black queens, 3 for one dollar; also a few hybrids.
5tfdb H. FITZ HART, Avery P. O., Iberia Par., La.

WANTED.—Black and hybrid queens.
GEO. H. GRACE, Perry, Iowa.

FOR SALE.—10 mismated Italian queens at 50 cts. each. S. H. COLWICK, Norse, Texas.

THE DUAL HIVE.

A PERFECT OUTDOOR WINTERING HIVE. SWARMING ABSOLUTELY MASTERED.



The Original Dovetailed Hive

Is made of **SELECTED LUMBER,** light and strong. The frames fit either body if used as two separate hives for increase.

As shown above it holds 20 brood-frames for extracting, or 13 brood-frames and 28 1-lb. sections, or as I use it for comb honey, 9 brood-frames and 42 1-lb. sections.

Top-bars of frames are ⅞ in. square, do not sag. Sections are spaced so as to exclude the queen, and prevent the building of burr-combs or propolizing **WITHOUT** using honey-boards of any kind.

FOR SHIPPING, 9 frames, 3 cases, 21 sections, all put up with starters, 3 cases, 21 sections in the flat. Vestibule swarmer will pack in the brood-hive, which is put snug in the outer hive, and billed as nested hives, with gable roofs, or box stuff with flat roofs, **SAVING HALF** the freight.

FOR WINTERING, the brood hive is wrapped and covered air tight with paper, and the outer hive passed down over all, forming several dry-air spaces between double walls; will winter bees as well or better than a chaff hive. One complete hive, painted, weighs 25 lbs., and can be sent alone as **CHEAP** by **EXPRESS** as by freight.

FIVE hives in the flat weigh 100 lbs., and cost **NO MORE** than one by freight.

No hives will be sent in the flat except to those who first buy one hive made up.

One hive, made up and painted, ready for bees, as I use it, with 42 sections and starters for the same, and one book ..... $ 3 50
Two hives, furnished the same, and one book 6 00
Not painted, 25 cts. less. Gable roofs, as shown in cut above, 25c more for each hive nailed.
One smoker (can be shipped with hive) ..... $ 50
5 hives in the flat, with glass and nails to put up, 10 00
One hive nailed up, not painted, as sample with cover 2 50
Vestibule swarmer, and 1 book—the "Bee Key." 50
Gable roofs in flat, cost 10 cts. more for each hive.

My book teaches how to **PREVENT** the building of drone comb in the brood-nest without using foundation; **HOW** to control swarming **ABSOLUTELY, WITHOUT** caging or clipping the queen; how to make more by producing comb honey than **Extracted.** Will be ready in three weeks Price **25 CENTS,** which will be refunded every time for the book, if any do not think it worth the money.

Order early to receive them from stock in hand. Later orders may be delayed in getting them out in the busy season.

Cash **MUST** accompany all orders. Send by registered letter, P. O. money order, or certified checks to order of **F. DANZENBAKER,**
1301 K St., N. W. Washington, D. C.
When more convenient, to A. I. Root, Medina, O.

BURPEE'S SEEDS ARE THE BEST

it is possible to produce by constant, most critical care, and are **WARRANTED,—few equal and none better.** Handsomely illustrated **CATALOGUE,** with **colored plates painted from nature,** of **RARE NOVELTIES** of sterling merit, mailed **FREE** to any address. *W. ATLEE BURPEE & CO., Philadelphia, Pa.*

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1421 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.;** R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

MUST SELL!

50 Colonies Italian Bees at $5.00 each, f. o. b., in 8-frame L. hives, telescope caps. Most of the combs built on fdn. in wired frames. These bees were very heavy in stores in the fall. Reasons: Can keep only about 25 colonies here in the city, and my business will not allow starting out-apiaries. Ship in April or May. **W. E. YODER,**
4tfdb LEWISBURGH, UNION CO., PA.

☞In responding to this advertisement mention GLEANINGS.

Japanese Buckwheat, 60c Per Bush.

Alsike clover seed, $7.00 per bush. No. 1 one-piece sections, $3.00 per M. Extra nice foundation, thin, 50c per lb.; brood, 45c. Best bee-veil out, only 30c. All supplies cheap. Send for new list free.
22tfd **W. D. SOPER,**
Box 1473. Jackson, Mich.

$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with Tested Queen, or 5 for $25.00.

In Simplicity or L. 10-frame hives; 250 colonies to
4-9db draw from. Address
JNO. A. THORNTON, LIMA, ADAMS CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

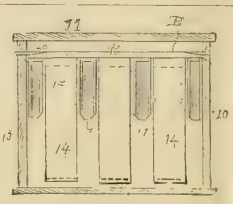
FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks. Address **N. A. KNAPP,**
4tfdb **Rochester, Lorain Co., Ohio.**

SEEDS. Don't buy your seeds or plants till you see my FREE 1890 catalog. I offer something wonderful. Send for it. F. B. MILLS, Thorn Hill, N. Y.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.
J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

☞In responding to this advertisement mention GLEANINGS.



By the use of my improved spacer, an ordinary hanging frame hive is converted into a reversible or movable hive. A hive is quickly and correctly spaced, and the frames are held in their proper position, and will not be lifted when removing the cover if they are fastened to it by brace-combs. A contracted hive is made movable or invertible. In adopting this, it requires no change in a hanging-frame hive.

Price of Brood-Chamber and 8 frames.....$1.50
One Hive and 1 doz. extra spaces.... ..... 4 00

In ordering state what frames you use, and give the width of your hive, inside. 6-11db
J. B. WILCOX, - - MANISTEE, MICH.

☞In responding to this advertisement mention GLEANINGS.

UNTESTED ITALIAN QUEENS AT $1, and 4-frame nuclei at $3.50, after May 1st. Send in orders now.
4-10db S. J. WAKEFIELD, Autreville, S. C.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES,** write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address
R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.

☞In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS' SUPPLIES.

We are prepared to furnish bee-keepers with supplies promptly, and at greatly reduced rates. Estimates gladly furnished, and correspondence solicited. Our goods are unexcelled in quality and workmanship.

Italian Queens and Bees at a very low price. Send for large illustrated price list, free. Alley's Queen and Drone Trap and Swarm Hiver always on hand. **A. F. STAUFFER & CO.,**
20tfd **Sterling, Ill.**

BEES AND HONEY

The Dovetailed **Strongest, Best** and **Cheapest BEE-HIVE** for all purposes. Pleases everybody. Send your address to the **Largest Bee-Hive Factory in the World** for sample copy of **Gleanings in Bee Culture** (a $1 illustrated semi-monthly), and a 44 p. illustrated catalogue of **Bee-Keepers' Supplies.** Our **A B C of Bee Culture** is a cyclopedia of 400 pp., 6x10, and 300 cuts. Price in cloth, $1.25. ☞ *Mention this paper.* **A. I. ROOT, Medina, O.**

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THE CANADIAN

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.

INDUSTRIAL HIVES.

We manufacture hives with latest and best improvements. The **LYMAN INVERTIBLE** and **CLARK UNION** brood-frames are united with Sectional honey-boards. Do not stock up with old-style goods before sending for descriptive list. Sample hive, complete, $2.35, or frame, postpaid, 25 cts. Fine Italian queens, etc., etc.
-d J. W. CLARK, Clarksburg, Mo.
☞In responding to this advertisement mention GLEANINGS.

Albino and Italian Queens and Bees

For 1890. I am prepared to furnish a large quantity of either variety; but if you should ask for the best, The reply, Albino, I! if you should ask why, I will refer you to the many that cry, "Albino for I." In my circular you can see why. Address
S. VALENTINE, Hagerstown,
7-9d Washington Co., Md.

24 COLONIES ITALIAN BEES for sale in good condition, on Langstroth frames, in shipping-boxes, at $3.00 per colony.
WM. AMELANG,
7-8d Ottumwa, Wapello Co., Iowa.

ITALIAN **EARLY QUEENS** BEES.

1 Untested queen, April $1.00. May, $1.00.
3 " " " 3.00. " 2.50.
1 Tested " " 2.00. " 2.00.

Special discounts to dealers. Safe arrival guaranteed.
W. J. ELLISON,
7-8 9d **Stateburg, Sumter Co., S. C.**
☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

A fine lot of spider, or Grayson Lily Bulbs, which I will sell. Small bulbs 25c, large ones 50c. Very beautiful and fragrant, pure white. I also have 40 or 50 stands of mostly Italian bees for sale. Will sell Queens in April. Would exchange bees for registered Jersey heifer. S. G. WOOD,
4-9db BIRMINGHAM, JEFF. CO., ALA.

1884. TAR-HEEL APIARIES. 1889.

After May 1st, Warranted queens $1; prior to May, $1 50; Virgin qu., 50c; Bees, $1 per lb.; Nuclei, 75c per L. frame. Thin foundation, 50c per lb. *Selected Exhibiting* and *Breeding* Queens, $5. Sample of *4 and 5 Banded Bees*, and *Red Drones*, 10c. Finest in the U. S. Price list free.

American Albino Italian

SMALL ENGLISH YORKSHIRE PIGS!
"Duke of Goldsboro, No. 861," Duchess of Goldsboro, No. 1523," "Lady Wayne, No. 1529," heads my herd-pigs; $6 each; $11 per pair. 6-7-9d
ABBOTT L. SWINSON, Goldsboro, N. C.
☞In responding to this advertisement mention GLEANINGS.

CONSIGNMENTS OF HONEY

And **BEESWAX** solicited. Send samples, state particulars, and mark from where samples come.
6-7-8d **HOGE & PHIPPS,**
264 Willoughby Ave, Brooklyn, N. Y.

BUSINESS.

I will be prepared by April the 10th to ship untested queens bred from my fine strain of non-swarming Italians. These bees are gentle, prolific, and fine honey-gatherers. Satisfaction and safe arrival guaranteed. If by chance a queen should prove not good I will gladly replace her when notified of the fact. R. B. WILLIAMS,
6-7-8d Box 72. Winchester, Tenn.
☞In responding to this advertisement mention GLEANINGS.

New Orleans Apiaries for 1890

Orders are now taken for early ITALIAN and CARNIOLAN guaranteed Queens. Send for price list of Best and Cheapest Apiarian Supplies offered.
Address **J. W. WINDER,**
6tfdb **572 Magazine St., N. O., La.**
☞In responding to this advertisement mention GLEANINGS.

BEES FOR SALE

COLONIES, NUCLEI, AND QUEENS, at living rates. Send for circular and price list to

C. C. VAUGHN & CO.,
4tfdb **Columbia, Tenn.**
☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

SEEDS. Don't buy your seeds or plants till you see my FREE 1890 catalog. I offer something wonderful. Send for it. F. B. MILLS, Thorn Hill, N. Y.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES,
HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.
P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (*Mention Gleanings.*) 1tfdb

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation. 1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange foundation, for beeswax. Sample on application. 5tfdb Avery's Island Apiary, Avery, La.

WANTED.—To exchange one Acme harrow, new, for Poland-China swine, either sex, or Shropshire ewes, or any thing I can use on the farm or in the apiary. LUTHER PURDY, Killbuck, O. 5tfdb.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tfdb OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange Turner and Cuthbert raspberry-plants for pure Italian queens, eggs for hatching, etc. E. R. MILLER, 5-6-7d Garden City, Cass Co., Mo.

WANTED.—To exchange one Green's solar wax-extractor, *new*, for an incubator or Italian queens. G. C. HUGHES, 6tfdb Pipestem, West Va.

WANTED.—To exchange thin fdn. for honey. 5d C. W. DAYTON, Bradford, Ia.

WANTED.—A person of experience in bee keeping to take charge of an apiary of fifty colonies of Italians for half the profits. Swarming begins the first of April; honey season closes the first of June. J. B. MITCHELL, 6-7d Hawkinsville, Ga.

WANTED.—To exchange a handsome male Scotch collie for Italian bees. ROBERT WALLACE, 6d Turkey, Mon. Co., N. J.

WANTED.—Help on farm, and to sare for 18 colonies of bees. State wages wanted by year or eight months. G. J. GRAY, Dell, Ore. 6-7d

WANTED.—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with 5½x9½-in. chase. 3-11d S. A. SHUCK, Liverpool, Ills.

WANTED.—To exchange Cuthbert raspberry-roots for beeswax, L. fdn., and Shaffer's Colossal raspberry-roots. M. ISBELL, 5-7d Norwich, Chenango Co., N. Y.

WANTED.—To exchange Japanese buckwheat, Root's price; Laced Wyandotte eggs $1 00 per 13, from selected stock; also bees, for seed potatoes; early varieties preferred; Bingham smokers, or offers. F. W. DEAN, New Milford, Pa. 7d

WANTED.—To exchange a few first-class flower seeds for any kind of flowering bulbs; gladiolas, cyclamen, or lilies preferred, or any kind of owering plants or seed that I have not got myself. J. LINGENFELTER, Akin, N. Y.

WANTED.—To sell or exchange 40 hives of Italian bees in first-class two-story Simplicity chaff hives, tin tops (Root's invention), all in excellent condition, for young stock, cattle, sheep, or hogs, or something else of value. Also hives, double nucleus, sections, foundation, or my whole apiary for sale, as may suit seller and purchaser. Location good, and a home market for honey. J. Q. A. HAUGHEY, Battle Creek, Mich. 7d

WANTED.—To exchange, a fine double-barrel B. L. shotgun for ladies' dress goods, or offers. ADOLPHUS NEWTON, Norwich, N. Y., Box 911. 7d

WANTED.—Japanese buckwheat, alsike and white-clover seed, in exchange for apiarian supplies. L. J. TRIPP, Kalamazoo, Mich. 7tfdb

WANTED.—To exchange foundation at 40 and 50 c. per lb. for any quantity of nice yellow wax at 28 cts. per lb. B. CHASE, Earlville, N. Y. 7 8d

WANTED.—To correspond with parties who have a small planer to sell. GEO. RALL, 7d Frenchville, Wis.

WANTED.—To exchange bees or Italian queens for a fdn. machine. J. J. HARDY, 7d Lavonia, Ga.

WANTED.—To exchange a self-inking printing-press, chase 2½ x 4 in., outfit, cards, scrap pictures, etc. (value $10 00), for light brood fdn. or offers. F. H. HERMAN, Tuscaloosa, Ala. 7d

WANTED.—To exchange thoroughbred poultry or eggs for a one-horse wagon, harness, or harness leather. J. M. YODER, Millersburg, O. 7d

WANTED.—To exchange Japanese buckwheat and books for apiarian supplies or offers. Write first. REV. S. ROESE, 7d Maiden Rock, Pierce Co., Wis.

WANTED.—To exchange cold-frame Cabbage Plants, J. Wakefield (March's seed) and All Seasons; cold-frame Lettuce P'ts, G. Rapids and Barr's Mam. Asparagus Roots, for bees or beeswax. Write. EDW'D B. BEEBEE, Oneida, N. Y.

WANTED.—To exchange a general-utility hand-cart, good as new. Write for particulars. A. F. BRIGHT, Mazeppa, Minn. 7tfdb

WANTED.—To exchange eggs for hatching, from imported Black Minorcas, for bees and queens. Safe arrival guaranteed. Circulars free. 7tfdb ☐ LESLIE STEWART, Jefferson, Scho. Co., N. Y.

PLY. Rocks, White and Laced Wyandotte eggs, in exchange for foundation, sections, Japanese buckwheat, or offers. Also a second-hand pony harness. T. G. ASHMEAD, Williamson, N. Y. 7-12db

WANTED.—Cherry, currant, strawberry, blackcap and blackberry stock, for extracted honey, bee-food, or offers. G. H. ASHBY, Albion, N. Y.

WANTED.—To exchange Ohio Valley wire and picket fence machines for bees and bee-supplies. Circulars free. JAS. M. MANGOLD & BRO., Moundsville, Marshall Co., W. Va.

WANTED.—To exchange a 6 x 9 self-inking press, with type, for a Barnes foot-power circular saw, and a 2-foot telescope, for 4-inch foundation rolls, or offers. L. L. ESENHOWER, Reading. Pa.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Black queens, 3 for one dollar; also a few hybrids. 5tfdb H. FITZ HART, Avery P. O., Iberia Par., La.

35 hybrid queens for sale at 40c each, or 3 for $1. H. H. T. KOHLENBERG, N. Brauntels, Comal Co., Texas.

To clear this country of all black blood, I will sell black and hybrid queens for 25 cts.: mismated, for 40 cts. F. C. MORROW, Wallaceburg, Ark.

I have 6 black queens for sale at 35 cts. apiece. J. J. HARDY, Lavonia, Ga.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—Demand is fair for comb, white; extracted sells slow. We quote white comb, 1-lb., at 11@12; 2 lb., 10@11; dark, 1-lb., 9@10; 2-lb., 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, none in market. CLEMONS, CLOON & CO.,
March 22. Kansas City, Mo.

BOSTON.—*Honey.*—We are all sold out of fancy 1-lb. white honey, and could sell a limited quantity at 16 cts. for something fancy. Extracted is a little slow of sale from 7½ @ 8½ cts. *Beeswax*, none on hand. BLAKE & RIPLEY,
Mar. 22. 57 Chatham St., Boston, Mass.

ST. LOUIS.—*Honey.*—We quote white-clover honey, choice stock, 1-lb. sections, 13 @ 14 cts. Lower grades, 9 @ 11 cts.; slow sale. Extracted honey, slow sale. Southern, 5 @ 5½; choice white clover, small cans, 6½ @ 7½. *Beeswax* scarce at 23½ and 24 for choice. W. B. WESTCOTT & CO.,
Mar. 22. St. Louis, Mo.

DETROIT.—*Honey.*—Comb honey is selling slowly from 11@13 cts.; amount in sight gradually decreasing. Extracted, 7@8. *Beeswax*, scarce at 25@26.
M. H. HUNT,
March 24. Bell Branch, Mich.

ST. LOUIS.—*Honey.*—Market very quiet and inactive virtually no demand, and while prices are no lower, concession would have to be made if sales were forced. *Beeswax* in demand, and strong at 25 cts. D. G. TUTT GROCER CO.,
Mar. 22. St. Louis, Mo.

ALBANY.—*Honey*—Receipts during the past week 39 cases. Our stock on hand is now reduced to less than one hundred cases. Demand for comb honey moderate. Extracted quite brisk; no change in prices. C. MCCULLOCH & CO.,
Mar. 22. 339 Broadway, Albany, N. Y.

SAN FRANCISCO.—*Honey*—Extracted honey quiet, 5½@½. Comb honey, 8@12 *Beeswax*, 20@23.
SCHACHT, LEMCKE & STEINER.
Mar. 13. 16 & 18 Drum St., San Francisco, Cal.

KANSAS CITY.—*Honey*—Market unchanged. We are well cleaned up on honey.
HAMBLIN & BEARSS,
Mar. 22. Kansas City, Mo.

FOR SALE.—100 one-pint pails filled with honey, clover and basswood mixed, at 15 c. each. Delivered in Addison. THADDEUS FISK, Lenawee Co., Mich.

CHENANGO VALLEY APIARY.

Send in your orders now for June, and try my fine yellow Italian queens, well known to many of my customers of 1889.

Two-frame nucleus with queen, in June, $2 00. Tested queen, $1 50; untested, $1.00. Send for circular.

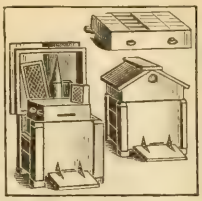
7tfdb MRS. OLIVER COLE,
Sherburne, Chenango Co., N. Y.
☞In responding to this advertisement mention GLEANINGS.

125 COLONIES ITALIAN BEES AT BOTTOM PRICES. A. F. BRIGHT, Mazeppa, Minn.
7tfdb

COMB FOUNDATION MILLS.
Made by W. C. PELHAM,
7-8-9d Maysville, Ky.

Italian Bees and Queens.

Tested queen, $1 50; untested, $1 25. Bees per lb., $1 00. Frame of brood, 50 cts.; 3 frame nucleus, containing 2½ lbs. of bees, 2 L frames of brood and tested queen, $4 50. Queens reared from imported mother. Mismated queens, 50 cts. each. Send card for price list MRS. A. M KNEELAND (*nee* Taylor),
7-8d Box 77, Mulberry Grove, Bond Co., Ill.
☞In responding to this advertisement mention GLEANINGS.



HILTON'S
Improved Chaff Hive
AND T SUPER.
The pamphlet: "How I Produce Comb Honey." Price 5 cts. Send for free illustrated price list of everything needed in the apiary.
CEO. E. HILTON.
5-10db Fremont, Mich.
☞In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.
BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.
We carry a complete stock of Apiarian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db
R. B. LEAHY & CO., Higginsville, Mo.
☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.
WE make the **best** Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3.50 per 1000.
☞ Parties wanting more should write for special prices. No. 2 sections, $2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb
C. B. LEWIS & CO., Watertown, Wis.
☞In responding to this advertisement mention GLEANINGS.

SECTIONS, $3 PER 1000.
Foundation, Alsike clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our FREE PRICE LIST. M. H. HUNT, Bell Branch, Mich.
Please mention GLEANINGS. 1tfdb
☞In responding to this advertisement mention GLEANINGS.

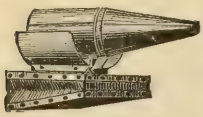
LOOK HERE!
Bee-Keepers and Fruit-Growers, before you order your supplies for 1890, send for my catalogue and price list of **Bee-Keepers' Supplies** and **Strawberry Plants.** Twenty-five approved varieties grown for this season's trade. Prices reasonable. **Bees** and **Queens** for sale; $1.00 queens a specialty. Address F. W. LAMM,
24-23db (Box 106.) Somerville, Butler Co., Ohio.
☞In responding to this advertisement mention GLEANINGS.

Ho! Ye in Dixie Land!
LEARN SOMETHING NEW
Of Interest to You in my New 1890 Catalogue
Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS.*
Southern Bee-Keepers, Send for it NOW.
J. M. JENKINS, - Wetumpka, Ala.

FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks, Address N. A. KNAPP,
4tfdb Rochester, Lorain Co., Ohio.

FOR SALE.
I have a saw-mandrel table, all complete, fitted for power, for $20.00. The machine is all new, and the table is made of hard wood and oiled; the mandrel has space for four groovers, has parallel gauge figure four, cut off gauge, and beveling platform; one 10-in. rip-saw, cut off and groovers.
7d B. F. STOVER, Roscoe, Ohio.
☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...$2.00
Conqueror "	3 "	"	... 1.75
Large "	2½ "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow ")	2 "	"	... 1 00
Little Wonder,	1¾ "	"	... 65
Uncapping Knife.....			..1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—ITALIAN BEES & QUEENS at a very low price. Address

6tfd OTTO KLEINOW,
No. 150 Military Ave., Detroit, Mich.

I ARISE, TO ASK if you want any Bees or Queens this season. If so, drop a postal card for Doolittle's 1890 circular. Tested queens from $1.50 to $6.00, according to quality; bees from $5.00 to $7.00 per colony. Don't fail to send your address, plainly written, for price list, to

G. M. DOOLITTLE,
BORODINO, ONON CO., N. Y.

CHOICE ITALIAN QUEENS.

Tested, $1.50. Untested, $1.00. Tested queens reared in the fall of '89, $1.50. These can be mailed at once. MISSES S. & M. BARNES,

7-12db Piketon, Ohio.

☞In responding to this advertisement mention GLEANINGS.

Holmes Co. Poultry Yards, J. M. Yoder, Prop'r.

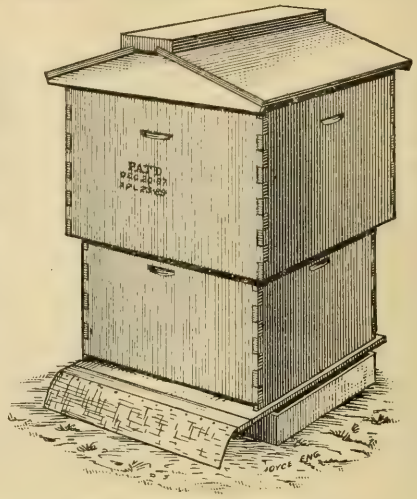
Poultry and Eggs.—I breed and ship the following Pure Bred Stock and Eggs: L. Brahmas, B. P. Rocks, S. L. and White Wyandottes, B. B. R. and Red Pile Games, S. C. Brown, S. C. White and R. C. White Leghorns, W. F. B. Spanish, S. S. Hamburgs, Golden, W. C. Black and W. C. White Polish, American Dominiques, Black Minorcas, Bronze Turkeys, Pekin and Rouen Ducks. Eggs, $2.00 per 15; $5.00 for 45, except Turkey Eggs, 30c each.

7d **J. M. YODER, Millersburg, O.**

☞In responding to this advertisement mention GLEANINGS.

THE DUAL HIVE,

A PERFECT OUTDOOR WINTERING HIVE. SWARMING ABSOLUTELY MASTERED.



AS SHOWN ABOVE,

Contains 9 brood-frames and 42 1 lb. sections — in two tiers of supers, with one tier of sections and super in the flat, packed in the brood hive, with starters in the frames and sections; ready for bees; one perforated queen-bar, Vestibule swarmer, and the book, "Bee-key".....$3.50.

Two hives (with flat covers), each furnished as above, and one book for.....$6.00.

One smoker (can be sent in the hives) extra, 50 cts.

Bee-veils, with hives, 50 or 75 cts. extra.

The book, **Bee-key**, teaches how to handle bees; how to control swarming; how to prevent the building of drone comb without using foundation; how to make more by raising comb honey than extracted; how to winter bees; cure dysentery, and prevent spring dwindling. For first orders, price 25c.

For price of hives in flat, see Mar. 15 GLEANINGS, page 229.

Cash must accompany all orders. Send by registered letter, P. O. money order, or certified checks to order of **F. DANZENBAKER,**

1301 K St., N. W. Washington, D. C.

When more convenient, to A. I. Root, Medina, O.

☞In responding to this advertisement mention GLEANINGS.

REVIEW OUR 1890

16-page circular of bee-keepers' supplies, etc. Also note prices of our choice strain of Italian bees. Circular free. Address **JNO. NEBEL & SON,**

5tfdb **High Hill, Mo.**

The Bee-Keepers' REVIEW

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free. Send for them, and learn how to get the back numbers cheaply.

W. Z. HUTCHINSON, Flint, Mich.

MY 22D ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. *H. H. BROWN, Light Street, Col. Co., Pa.*

PURE P. ROCK EGGS, $1.00 PER SETTING OF 13. For Sale by

6d **L. C. AXTELL, Roseville, Ill.**

Vol. XVIII. **APR. 1, 1890.** **No. 7.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

SHIPPING-CASES—SMALL SIZE.

OUR FRIEND C. F. MUTH STRONGLY ADVISES THEM.

SHIPPING-CASES for comb honey are a very important item for the bee-keeper as well as for the dealer. The safe arrival of comb honey depends principally on the shipping-cases; and, next to the quality of the honey, it is the case that makes the sale. We had very many shipments of comb honey this season, and, as in previous seasons, there were a variety of different-sized cases. We found invariably that the smallest cases were the safest in transit, and the first sold. If it were not for the mutal interests of shipper and consignee, the disappointment, and, often, the unpleasant feeling created by the arrival of a lot of comb honey in bad condition, should be cause enough to throw aside every case unfit for shipment. As in previous seasons, we had this winter also a number of large cases containing 48 1-lb. sections, and even 48 2 lb. sections, 45 to 60 lbs. net of comb honey in a case. It is too much. A heavy case is invariably set down heavily, and a jar to one side seems to break a whole row of combs. The 24-lb. section-cases are a great deal better, but they too are too large.

By far the most practical, the safest in transit, and the most salable and the cheapest of all shipping-cases, are those containing 12 one-pound sections. We shall hereafter offer none others for sale, and recommend only such to be used by our friends and shippers. As a great many lots of comb honey pass through our hands, our opportunity of becoming acquainted with all kinds of packages is second to none; and our judgment as to the best package ought to be reliable. During the present winter we had, among perhaps a dozen, only one shipment of comb honey, 12 sections in a case, arrive in bad condition, while almost every other shipment in large cases arrived more or less damaged. The damage in those small cases was not great, and could easily be seen, and the broken combs taken out and replaced by sound ones from another case. But nobody, unacquainted with it, can appreciate the job of overhauling a large lot of comb honey in large shipping-cases. One is at a loss to know what to do with the broken combs. So it is our candid and well-meant advice, that the large shipping-cases--go. CHAS. F. MUTH & SON.

Cincinnati, O., Mar. 17.

There is a good point here, my friends—one that I have often thought of. If we put up any sort of goods in large quantities, in a single package, the danger of destruction is much greater. A whole colony of bees, with sufficient stores to last them over winter, is too heavy to ship safely, while half of the bees and half of the stores would stand transportation without trouble. Now, the same is true with shipping-cases. But I confess that I should say twelve 1-lb. sections would be going to the other extreme. The only objection is, however, there are too many pieces to handle, and the carriers are apt to get cross. It is true, a man might take one in each hand; but the average railroad man would prefer carrying 50 lbs. at once rather than 12 or even 25. It seems to me that two 12-lb. cases side by side would work better. Again, how about piling up 12-lb. cases? I have been told that much honey is damaged by being piled up in the car in such a way that it falls over or tumbles down. Your experience, however, in favor of the little cases is pretty hard to get around. I wonder somewhat that other honey-dealers and commission men have

not emphasized this matter before. I have seen some very pretty cases in the large cities, made to hold 18 or 20 sections.

ARTIFICIAL INCREASE.

FRIEND DOOLITTLE GIVES THREE WAYS.

A CORRESPONDENT wishes me to give in GLEANINGS some of the different plans used in making swarms artificially, as it is termed. In complying with this request I will give the three plans which have proved the most satisfactory with me; but before doing so I first wish to say, that, for this locality, I prefer natural swarming to any plan of artificial increase where only one swarm is allowed from each old colony, and where said swarm will issue in time to prepare both old and new colonies in good shape for the honey harvest. The first plan I will give of artificial increase is what is termed by some the "nucleus plan."

To be of the most value the nucleus should be formed eighteen or twenty days before the honey harvest, by having enough bees in it to protect a frame two-thirds full of brood, the larger part of which should hatch during the first four or five days, while said comb should contain some eggs just laid, is possible. Besides this frame of brood and bees, the nucleus should contain a frame having a pound or two of honey in it, the whole being set in a hive and confined by means of a division-board. The next day after making, a mature queen-cell should be given, or newly hatched queen introduced. In about ten days, if all proves favorable, the young queen will be laying, when I go to the hive from which I formed the nucleus, and select a frame of brood, nearly all of which are gnawing out of the cells, and add this to the nucleus, always putting a frame of comb or comb foundation into the old colony to take the place of the one taken out, otherwise too much drone comb would be built; for colonies that are allowed to build comb under these conditions nearly always build drone comb. I now wait four or five days, when I go to the old colony and take out four frames of brood, from which all the bees are shaken as they were from the last-mentioned comb, when I carry them to the nucleus. I now fill out each hive with empty comb of foundation, and put on the surplus arrangement. By the above each colony is made of about equal strength, and the brood is so taken out of the old hive that the colony does not have a desire to swarm. This old colony will have the most field-bees for the first week or so, but the other will soon make the stronger colony of the two.

THE SECOND PLAN.

My second plan is to make one colony from each old one, on the principle of division of bees instead of division of brood, as in the above case. In using this plan we must have queen-cells nearly mature by the time our first colonies are preparing to swarm. Having such cells on hand, I go to a colony preparing to swarm, or one that has its hive full of bees and brood, and move it to one side of the old location, so as to put a new hive in its place. If a hive is not full of brood and bees, do not touch it; for it is useless to try to increase bees till such is the case. I now look over the combs till I find the one having the queen on it, when I place said comb in the new hive. I next give them a frame having some honey in it, and then fill out the hive with empty comb or foundation, when about two-thirds of the bees in the old hive are shaken in front of the new hive and allowed to run in. After this I arrange the frames back in the old hive, putting a division-board in place of the frames taken out, when the old hive is carried to a new location where I wish it to remain. After the bees thus removed have become reconciled to their queenless condition I give them one of the nearly matured cells, or a virgin queen which will soon be laying. In this way I have secured my new swarm, controlled all after-swarming, and introduced my young queen, all to my liking and with but little trouble.

MY THIRD PLAN.

This is one which I use on the weaker colonies, or those which do not get ready to swarm up to ten days before the honey harvest, when I proceed to make colonies from them as follows: A hive is filled with frames of empty comb, and placed upon the stand of one of these colonies which have not swarmed, and all the boxes are taken off and placed thereon, then all the bees are shaken and brushed off their combs of brood and honey, in front of the hive, into which they will run as fast as shaken off. Thus I have a colony that is ready for the honey harvest, as they have the queen, bees, and partly filled boxes all in readiness for work. Previous to this nuclei have been started, so I have plenty of laying queens to use as I need them. I next take all the combs of brood from which the bees were brushed, except one, arranging them in the hive the bees were shaken out of, and carry them to the stand of another colony which has not swarmed. I next take the comb of brood which was left out, go to one of the nuclei, take out the frame having the laying queen on it, and place the frame of brood in its place. Take the frame—bees, queen, and all—and set it in the place left vacant for it when arranging the combs of brood. Now put on the boxes, and, having all complete, I move the colony to a new stand and set the prepared hive in its place. Thus I have a laying queen and enough of her own bees to protect her, together with a hive filled with combs of brood, and all the field-bees from the removed colony. The loss of bees to the removed colony stops the swarming impulse, and in about a week they have so regained their loss that they are ready for the boxes again. In this way I make one colony from two old ones, but have all in the best possible condition to take advantage of the honey harvest. These plans all look toward a host of bees in time for the harvest, with no desire to swarm; and thus having them gives an assurance of a large crop of honey. G. M. DOOLITTLE.

Borodino, N. Y., Mar. 17.

Old friend, it was rather pleasant, while reading the above, to feel that you and I agree exactly, at least in all essentials, in regard to the matter of artificial increase; and I do not know that I have any thing to add, unless it would be to wait until the time for natural swarms, and let the most of them swarm naturally if they would. If they do not seem disposed to do so, then divide; but as so much more honey is secured from those that do not swarm, unless I were especially anxious for increase I think I should say, as father Quinby (if I am correct) once said: "Those that swarm do well, but those that do not swarm at all do *better*." The number of colonies in a given locality,

however, should be considered. Where the field is good, and not enough to gather the product, the honey gathered unitedly by the old stock and the new may often exceed that from the colony that does not swarm at all. In this case it would be the other way: Those that do *not* swarm do well, but those that do swarm do *better*.

NOMENCLATURE, AGAIN.

DR. MILLER GETS US INTO MORE TROUBLE.

AND now our friend "over the border," on page 133, tries to soothe me into satisfaction with the existing status of apicultural nomenclature. Perhaps I am unnecessarily exercised, but I will take at least a little space to reply to Mr. McKnight. I suppose I must plead guilty to being "the inventor of that inappropriate phrase, T super." Mr. McKnight asks, "Is there any super in use that bears the slightest resemblance to the letter T?" No: things are not always named from their resemblance to something else. The Langstroth hive is not so named on account of its resemblance to the good old man of that name, neither is it named *movable-comb* hive on account of any resemblance, but it has the latter name because of its contents, just as the T super is so named because it contains T tins; and I can hardly believe it takes as vivid an imagination as our friend thinks, to see a resemblance between the T tin and the letter T. Hold one upside down in your hand, friend McKnight, and look at the end of it. Isn't it a pretty plain letter T? Why, the super just named itself.

Friend McKnight, you say, "It is no misnomer to call the box in which comb honey is sent to market a *case*." I didn't say it was. I don't think it is. But is it true that "case" always means the thing to ship in, and "crate" the thing on the hive, as you seem to think? That's just what I object to—the confusion in the matter, for I think your "case" is often called a "crate," and *vice versa*. Look in Heddon's book, "Success," and you will find in the index and in the body of the book, "shipping crate" and "surplus case." Even so elegant a writer as Prof. Cook tells of "shipping crates" in his Manual, although he also talks of "crates" on the hive. If we discard altogether the word "crate," I think we may without difficulty settle on "super" and "shipping-case," and possibly the latter may simply be called "case."

No, I am not reconciled to the definition of apiary as "a place where bees are kept," even with so good authority as the A B C; neither does it assist any to cite "the terms aviary, hennery," etc. An aviary is an aviary, even without a bird in it; but if you establish an out-apiary, can you say you have an apiary there before you have hauled your first colony there, or after you have taken all away?

Friend Root, in that same A B C, under the head of "Foul Brood," you say, "Having had to treat nearly one-half of our apiary," etc. Now, do you mean you treated one-half of the "place where bees are kept"? Under "Wintering," you quote Mr. Langstroth as saying, "When my apiary was managed chiefly for the sale of Italian queens." Was the "place" managed? When you say Mr. A has a larger apiary than Mr. B," do you mean Mr. A keeps his bees in a larger "place"? Does not the size of an apiary depend upon the number of colonies rather than the number of square feet? Please give us a definition for apiary that shall define the word as generally used.

But the term that "exercises" me most is the name "International American Bee Association." It was adopted, I think, without discussion, and, as I thought, rather hastily. The name is too long, and sounds a good deal bigger than the society; and if shortened, as some suggest, into simply "International," the case is, if any thing, still worse. "International" suggests a union of a number of nations, and sounds altogether too "spread eagle." It seems to me that the old name, "North American," is much better. C. C. MILLER.

Marengo, Ill.

Now, look here, doctor; I am not going to reply very much, for I do not want to get into a muss about names. Let me suggest, however, that "apiary" means the whole plant—bees, hives, and every thing else; but I still think it could be appropriately called apiary, even if every last bee should die in wintering. It will be an apiary as long as the things are left standing in just that predicament. If somebody should clear the hives all off, or stack them up in a heap, and set fire to them, then it would be an apiary no longer. As it is a subject, however, of little importance, comparatively, I think we can drop it for the present.

THE ALFALFA BOOM.

A CAUTION TO THOSE WHO EXPECT TO LEAVE GOOD HONEY PASTURAGE AT HOME FOR ALFALFA FIELDS.

Friend Root:—I notice, from time to time, mention made in GLEANINGS of alfalfa; and so far the items have been such as to give one who is unacquainted with the sections of country where alfalfa is raised, the impression that it would be a *bonanza* to just get with a good big apiary in the midst of such pasturage. I can speak of California so far as alfalfa is concerned, from actual observation, as I have made several trips here since 1875. I write as I do, more as a *warning*, to have any who might anticipate leaving a good honey pasturage in the East, fully *investigate* before taking much risk in the alfalfa boom. It seems to me, that, from what I have seen in GLEANINGS so far in regard to alfalfa, has savored a little bit of a desire to boom the localities in which the writers live, and get a little free advertising; but I know there may be exceptions. Now as to my views of this matter. 1. Alfalfa can not be successfully raised profitably, except in a warm climate, and, as a rule, it needs to be irrigated. As a general thing it is raised in localities where the *only* vegetation is from irrigation, and, consequently, not much else grows which produces honey. 2. Alfalfa is ready to *cut* about as soon as it is *nicely in blossom;* and especially where there are such large fields of it, they are anxious to get the first crop out of the way as soon as possible, so as to get the next, and so on to the next. I have noticed a great deal, and the above seems to be the rule. 3. If a crop is left for *seed* it is usually the third one; and at that season of the year there is no dew, and the weather is very hot and dry, and a hot north wind blows a good share of the time, so that I can't see very much show for the bees to

gather honey from alfalfa with any certainty, in California at least. I have talked the matter over a good deal with bee-men here, in different localities, and they are of the same opinion—not but that alfalfa will and does produce nice honey, but it is made into hay so soon, instead of honey; and that is not all. If you want to get where your system will soon be loaded with malaria, just go and live in a locality where they raise large fields of alfalfa, and irrigate them four or five times a year.

Nordhoff, Cal., Mar. 12. C. A. SAYRE.

Friend S., I made a good many inquiries in regard to alfalfa while I was in California, and the substance of the reports seemed to be very much as you give it. After I got home, however, and saw the statements that came from Arizona and Idaho, I felt a good deal disgusted to think that I had made such a lengthy trip and had not seen alfalfa honey at all. I am inclined to think the locality makes the difference. I am surprised at what you say about malaria. I did not know that irrigation was ever carried to such an extent as to produce any thing of the kind, especially in hot and dry regions.

MANUM TAKING A VACATION.

A VISIT WITH K. L. SMITH.

I HAVE noticed that vacations are very fashionable; and wishing to be in fashion, I decided, after preparing my bees for their long winter's rest, to take a vacation and visit some of our Vermont bee-keepers of whom we hear but little through the papers. Therefore, Nov. 1st I started out with my grip-sack in one hand and camera in the other; and by the aid of horse and steam power I soon landed in the town of Fairfax, where resides one of my dearest friends, Mr. C. C. Gillette, at whose home I very pleasantly and profitably spent several days. Although Mr. Gillette is not a bee-keeper, he is an interested reader of GLEANINGS.

The next day after my arrival, Mr. G. kindly proposed to take me to the apiary of Mr. K. L. Smith, which proposition I quickly accepted, and we were soon on the road, winding our way along the banks of the beautiful Lamoille River for about two miles, with old Mount Mansfield constantly staring us in the face; and as I was just fairly enjoying the beauties and pleasures of the drive, Mr. G. reined up to a pleasantly located home. As I alighted from the carriage, a gentleman about 50 years of age stepped out of what proved to be a tin-shop and honey-room, and greeted us very cordially as I asked if this was Mr. K. L. Smith. The following conversation took place:

"Is this Mr. K. L. Smith?"

"Yes, my name is Smith."

"Well, sir, my name is Manum."

"What! Manum the bee-man?"

"Yes, sir, I keep a few bees; and as I was visiting friends so near you I thought I would call."

"I am awful glad to see you. Walk right in here gentlemen. This is my honey-house and tin-shop," said Mr. S.

"Then you are a tin-smith, a bee-smith, and a supply-smith, I conclude, Mr. Smith?"

"Yes, I am a tin-smith by trade, and I work at it when not busy with the bees; and when buying my supplies I buy a few extra, to furnish those about me who keep only a few swarms of bees."

"What are you doing here, Mr. S.? are you extracting bug-juice?"

"No; my bees did not get much of that this year. This is white honey."

"I see you have the Novice extractor. Do you like it?"

"Yes, very much. It seems to do the work very nicely."

"Is it not rather late and cool to extract honey and do a good job?"

"Yes, rather; but these are a few combs I drew out of the hives during the honey-flow, and held as a reserve to feed such colonies as might be short of winter stores, but as my bees all filled up nicely this fall, I am now extracting the honey from these reserve combs; and by keeping the room very warm, as you see it is, I have no difficulty in throwing the honey all out."

"You do not feed much sugar for winter stores, I should judge," I asked.

"No; I have never fed any sugar, as I have so far succeeded in securing honey enough for winter."

"Do you find ready sale for your honey about home?"

"Yes. I have never had any difficulty in selling all I get. This year I sell comb honey at 18 and extracted at 15 cents per lb. I put up my extracted in 5-lb. pails; and my comb honey, which is in 1-lb. sections, is put up in these small show-cases. I leave a case of honey at each of our stores, within easy reach of me, with the understanding that my price is so and so, and that I am to take back whatever is not sold. But I never have to take back any. There, you can see that these show-cases have a glass on one side, so as to show the honey to good advantage. The cover closes down tight, and is held down by a hook so no flies can get to the honey. This package seems to suit our merchants better than any other I have tried, as many will handle my honey now who would not before I used these cases."

"Mr. Smith, I believe you are taking the right course to sell your honey. If more of us would adopt this method of working up a home trade we should hear less about our city markets being glutted with honey as they are some seasons. I had thought of this same method, but have never put it into practice; but I believe I will hereafter. How many colonies of bees have you, Mr. S.?"

"I have 80 that I intend to winter."

"How long have you kept bees?"

"I commenced 16 years ago with a few box hives; and soon hearing of your Bristol I ordered one of you to try. I liked it so well that the next season I ordered 40 more and now I have 80. I also have a few Simplicity and Langstroth hives, but I like the Bristol better than either of the others, for I can winter my bees out of doors in them if I wish, which would not be safe in the single-walled hives; and, besides, the Bristol is so convenient in summer on account of so much room in the cap; and it is not so necessary to set them in the shade."

"Do you winter any of your bees indoors?"

"Yes, all that are in single-wall hives."

"Which do you prefer?"

"Well, all things considered I prefer outdoor wintering, as I get the earliest swarms from those wintered on summer stands, and I also have less spring dwindling with those wintered outdoors."

"Do you find the business profitable?"

"Yes, My bees have paid me something every

year, some years more than others. Let us go out into the apiary."

"Mr. Smith, you have a very pretty yard indeed. I see you have a high tight board fence on three sides, and a cedar hedge on the fourth side. Do you consider this high fence beneficial to the bees the year round?"

"Yes, I do. Before I built it I had much spring dwindling; but since I put up the fence I have but little, and the fence prevents the snow from drifting around and over the hives; and when we have a high wind, my hives are not blown over as they were when unprotected. And, again, as my hives can not be seen from the road, people driving past are not so afraid as they would be if they could see the hives. Therefore, taking all in all, I am well pleased with the fence."

Said I, "I should like to make a picture of your apiary, if you have no objection."

"How did he do it, pa? I didn't see him; where is it?"

"I suppose," said the father, "the picture is in that box sitting up there. Good-morning, Mr. Allen," said Mr. Smith; "you are just a little too late to have your picture taken. Mr. Manum, this is Mr. H. A. Allen, of Milton, who is also a bee-keeper."

"Mr. Manum, I have heard so much of you that I feel quite well acquainted, and perhaps you will remember that I have ordered queens of you several times; and I must say that I like your strain of dark Italians. In my opinion they are *the* bees we want for business."

"How many colonies have you, Mr. Allen?" I asked.

"I have 25, all in the Bristol hives."

"Do either of you take GLEANINGS?"

"Yes," said Mr. Smith, "both of us, and I think

K. L. SMITH'S APIARY.

"Certainly not. I should be pleased to have you do so."

I replied, "Very well; then you may stand out here among the hives, and your little son just at your right, while your daughter stands a little way further, so as not to be in the shade of the trees. By the way, Mr. Smith, I have been told that you lost your wife some years ago, and that this 14 year-old daughter does all of your housework."

"Yes, my daughter has done our work since her mother died, with what little assistance I am able to render her."

"Mr. Smith, I can truly sympathize with you, as I buried my wife nearly a year ago. You are very fortunate indeed in having so capable a daughter to look after your housework. There, now, all remain perfectly still, as I am going to expose the place. All ready! There, all is over."

"Why, pa," said the boy, "has the man taken our picture so quick?"

"Yes, my son, I suppose he has."

it grows better and better every year. I don't see how Mr. Root can afford to publish it for $1.00 per year, and give us two copies every month. Why! it is too cheap."

"Well, gentlemen," I said, "I am glad to have met you. I shall now have to bid you good-by, as Mr. Gillette has already waited for me a long time."

"What do you ask for those pictures, if I should want any of them?" said Mr. S.

"My price is $2.00 for the first six, then 25 cents each." A. E. MANUM.

Bristol, Vt., Mar. 1.

Thank you, friend M., for the compliment that you and your friends pay GLEANINGS; and may I emphasize a little moral right here? There is a promise in the Bible to those who give good measure: "Give, and it shall be given unto you; good measure, shaken down, pressed together, and running over." I do not mean by this that we shall give more than a just equivalent for the

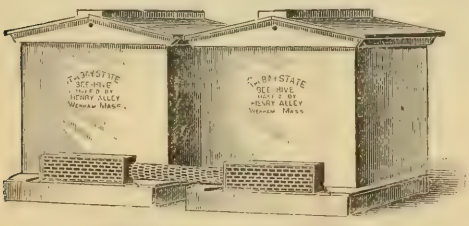
proper price, especially for commodities that have a fixed price; but I do mean that we shall most carefully avoid giving way to the temptation to scrimp, and to be small in deal. When you receive a stated sum for a day's work, give a full honest day's work. Do not scrimp at the beginning nor at the end. If any thing, work a little longer than you bargain to do; and rather than do too little, go to the other extreme, and do a little more than is expected of you. In other words, give good measure. If you are publishing a journal, work hard to make it worth the money to every subscriber. Instead of disappointing them because of short measure, give them a pleasant surprise now and then in good measure; and in the end you will be pleasantly surprised by getting good measure back again; for does not the Bible say in that same verse, *for with the same measure that ye mete withal, it shall be measured to you again?* Now, I confess that the above looks a little bit as if I wanted to boast; but I assure you, friends, that I do not. There is a great and wonderful truth right here; and it is the *truth* I want you to look at—not A. I. Root.

AUTOMATIC SWARM-HIVERS.

THE INVENTION AND PRACTICABILITY OF.

I BELIEVE bee-keepers are always ready to be interested in and willing to invest their money in any thing that will lessen labor and enhance the profits of bee culture. Some time ago I gave a description of an automatic swarm-hiver in the *American Bee Journal*, and at the same time inserted advertisements in nearly all the bee-publications. Since then I have received hundreds of calls for a full description and particulars of the swarmer. I mention this merely to show the interest bee-keepers take in any new device applied to bee-keeping.

No. 1. No. 2.



DESCRIPTION OF THE SWARMER.

The illustration represents the swarm-hiver attached to two Bay State bee-hives. The entrance to this hive is 9¾ inches long, or wide, and ⅜ of an inch high. The swarmer just fills the entrance. Now, if you examine the engraving you will see that the part through which the bees pass is nothing more than a box made of light material, having one side covered with perforated metal. Thus far the swarmer is constructed exactly like the lower section of the drone and queen trap. While the queen and drones pass into the drone-trap over the entrance, the bees and queen, when a swarm issues, are compelled to pass out at the end of the swarmer through the metal tube into the empty hive. The same arrangement that prevents the drone and queen from getting out of the drone-trap is used in the swarmer to prevent the queen from returning to the home hive when a swarm issues.

To better illustrate the working of the swarmer, we will suppose that hive No. 1 is the full colony, and that No. 2 is the empty hive, arranged to receive the bees in case a swarm issues. When a swarm comes off, the bees rush out pell-mell, and escape through any outlet handiest to them.

Now, the experienced bee-keeper knows well that thousands of the bees, in order to escape from the hive, will be forced to pass through the tube at the end of the swarmer; and as the queen can escape in no other way, she, too, also finds it most convenient to pass through the tube; and when once in the tube she must move on to the next exit, which leaves her in the empty hive. There she must stay, as it is impossible for her to retrace her steps through the tube, as experience with the drone and queen trap has demonstrated.

While the queen is looking about for a place through which she can pass to join the bees, the swarm is flying in all directions in search of her, and in the course of a few moments the bees begin to return to the home hive.

Any one who has witnessed the return of a swarm of bees to a hive at swarming time has noticed that the bees return in great numbers and settle over a large area. They do not center at the entrance of the hive as they do when working and returning from the field.

It is understood, of course, that the swarmer catches the *queen* when a swarm issues. The bees miss her: and when they return, thousands of them will alight on the swarmer at the entrance of the new hive, when they at once discover their queen and readily enter and settle down to work. If only one or two bees find the queen, they give the signal to the others, and in a few minutes all the swarm will have joined her, when they can be placed in another part of the apiary. If a second swarm is desired, the arrangement should be set as in the first case. Bear in mind, that the empty hive should be placed as near the home hive as possible. The philosophy of this will be understood by all who keep bees.

It is not necessary to attach a new hive to the swarmer to catch a swarm. A box so arranged that what few bees get into it while at work can easily escape, and so arranged, also, that the bees can get into it to join their queen when a swarm issues, will do as well as a hive. The bees can be transferred to a hive at any time during the day. Later on I will illustrate this arrangement.

TO WHOM BELONGS THE CREDIT OF THIS INVENTION?

Since the swarmer was described in one of the leading bee-papers, some half a dozen persons came out and claimed it as their invention. Every one was free to acknowledge the fact, that, where I use perforated metal, *they use screen wire;* yet they claim my invention as their own. One man in Canada says he used the same thing 20 years ago. I think he is somewhat mixed on his dates, considering the fact that perforated metal was unknown to the bee-keepers of America till D. A. Jones brought it this country about ten years ago.

Wenham, Mass., March 6, 1890. HENRY ALLEY.

Inasmuch as letters and models have been coming in in regard to non-swarmers, Ernest asked friend Alley to describe his invention above; and I wish to remind our

younger readers that this whole matter of automatic swarming is old. Ever since father Quinby invented a queen-yard, toward twenty years ago, automatic machinery for hiving swarms has been again and again brought up and described—yes, and patented. Some of the inventors declared that the machines worked beautifully, and I am inclined to think they sat and watched the hives, not only hour after hour, but day after day, to see the thing "go off." Now, although some of them have hived swarms to some extent, sooner or later all have been dropped. As I understand it, friend Alley does not claim any particular invention about it, more than substituting perforated zinc for screen wire. Furthermore, if I am correct, all the excitement so far about it is only on paper. It has never been tested in swarming time at all. The suggestion of using a light cheap box in place of a bee-hive is a good one. But this might make mischief; for if the owner did not get around to see to it, combs of honey might be built in this box. On this account I would suggest having in this cheap box a few frames of wired foundation, or empty combs.

RAMBLE NO. 22.

RAMBLER MAKES SEVERAL CALLS, AND FINALLY HAS A MISHAP.

BEFORE going another step, the Rambler would say that Shoreham has much mud after a day's rain. It is clay mud, too, of the very best kind. Ordinary mud will occasionally drop off from a person's feet. But every bit of Shoreham clay sticks with brotherly love. In our own perambulations around Bro. Larrabee's we didn't know but the whole farm would go with us. Shoreham farmers are noted for sticking to their farms, and no wonder; for a good share of a man's farm sticks to him. It's a case of mutual stickiness.

CREAM-HILL APIARY.

One cloudy morning, Bro. John proposed a visit to the Cream-Hill Apiary. The Rambler had heard of this famous apiary while on the wild and rocky

MISS WOLCOTT'S CREAM-HILL APIARY AND HONEY-HOUSE.

shores of Lake George; and from the description given, he supposed this to be the very creamiest apiary in all Vermont, both in relation to bees and people. We found, however, that it derived its name from being located near the Cream-Hill Stock Farm and Creamery, where imported Holsteins furnish the lacteal fluid.

Cream-Hill Apiary is conducted by the young veiled lady whose portrait is given on page 670, 1889 —Miss Georgiana Wolcott.

This apiary was established by Miss Wolcott's father, who was a very energetic and enthusiastic apiarist; but he was taken from his family and the busy pursuits of life, to the home beyond.

The apiary contains about 130 colonies and a pretty honey-house. The Bristol hive and clamp is used. The comb honey we saw here had a gilt-edged look, and, when crated, was marked, "Fancy," "Choice," and "Light Weight," according to the quality. Among the appliances for the easy handling of swarms was a very convenient swarming-box. The swarm was hived in this box, and conveniently carried by the handles to the Bristol hive, which, when planted, is never moved.

Miss Wolcott is trying to solve the problem of mixed bee-keeping by mixing in schoolteaching, and she seems to be successful. When crowded with work, however, Mr. Holmes is near at hand to help.

Our clouds of the morning changed to dripping skies, and we rather sadly wended our way home. The steady rain pattering on the roof of the Larrabee mansion caused the Rambler to dream of milking cows in empty tin pails; and now and then, floating mistily around the chamber, would appear a bevy of school-ma'ams waving the ever-ready birch rod. The Rambler and John H. both passed a bad night. In the morning the latter was no longer genial. He had the toothache, and kicked the cat, and didn't care ducats about Cream-Hill apiaries.

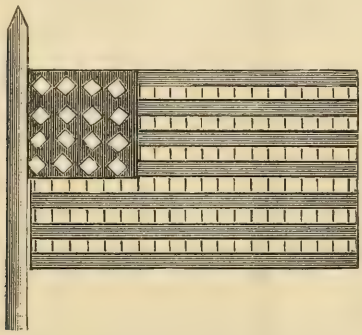
THE RED, WHITE, AND BLUE APIARY.

Mr. R. H. Holmes lives but a few miles from Bro. Larrabee's; and after another muddy drive we

MR. R. H. HOLMES' APIARY.

were in his yard. Mr. Holmes, we believe, devotes his entire time to honey-production, and has the care of several apiaries. He aids Miss Wolcott, and also cares for Miss Douglas' bees. In accordance with the name of his apiary, he paints his hives the colors of his country's flag. The name is original with him, as he then knew of no other apiary by that name. The Bristol hive is used, and comb honey secured. We found Mr. H. a careful workman, and his yard presented a neat appearance. A small wire-cloth house was near the center of the yard, in which to handle bees. The Given foundation-press is used, and the Rambler never saw pressed foundation made so evenly as Mr. Holmes'. We believe he uses it exclusively in his sections. Mr. Holmes puts up his honey in even-weight crates, sorting and weighing the sections before

crating. He has some demand for half-pound sections, and fills a limited number of them. His exhibit at the Vermont State Fair attracted much attention. It was gotten up in a very original manner. He carried out his "red, white, and blue" idea by making his honey-exhibit into a flag as shown in the sketch.



HOLMES' FLAG MADE OF SECTIONS OF HONEY.

The white stars and stripes are one-pound sections of honey. The rest is wood, and painted in colors.

Mr. Holmes is deacon and Sunday-school superintendent in the Congregational church at Shoreham, and is a man thought much of in the community. His home is enlivened by wife and children.

From Mr. Holmes apiary we made a short journey to see Miss Marcia A. Douglass, ex-secretary of the Vermont Bee-keepers' Association. Though owning 30 swarms, and interested in bees and bee-journals, she is at present not a bee-keeper. Mr. Holmes keeps the bees and hives the swarms while she attends to the swarms of ladies and girls who will deck their heads out with those things called bonnets, hats, etc.

From what the Rambler saw, we should judge that the millinery store was run with the same success that the bees were. Miss Douglass regrets that circumstances compel her to keep from among the busy hum of her pets. The Rambler was ill at

RAMBLER'S MISHAP.

ease in the store among so much gaudy finery, and was constantly afraid he would smash something. We regretted to see so many birds of brilliant plumage used to decorate hats. We were told they came from tropical climes; but if every millinery shop all over the land is stocked up with them, then millions must be killed every year to supply the demands of fashion. The Rambler got off into a reverie over the right and wrong of it.

We bade Miss Douglass farewell, and took our departure; but we knew we could not leave without a mishap. Our umbrella tried to carry off some of the fancy hats.

We envied our friend John, who seemed to bear a charmed life among so much finery. He had wonderfully recovered his geniality within the last hour; forgot his toothache, and laughed at the Rambler's predicament.

We had a slow ride in the rain and mud again, and the next morning we bade good-by to our very kind friends. We wanted to shake the mud from our feet, not in animosity, but we didn't want to carry the precious Shoreham soil away. We did, however, and some of it yet sticks to the RAMBLER.

Now, look here, old friend; Medina County has from time immemorial, had undisputed possession of the honor of being reckoned the banner county, not only in the State of Ohio, but any other State, for clay mud. The "dobe" on the mountains of California has a little advantage in being more waxy than our clay here in Medina County; but your vivid description of the Shoreham mud almost made us feel a little bit jealous. Well, we have had it for a steady six months without let-up or hindrance, and I am sure your Shoreham friends have not been favored to that extent. We are very sorry for your mishap in that millinery store, friend R. But then, if it had not been for that hook at the end of your umbrella we might not have had that glimpse of that pretty miss in trouble, shown in your sketch. Would it not be better to turn the hook of your umbrella down when you go off in a hurry, as you did there?

PEDDLING HONEY.

A GOOD ARTICLE ON THE SUBJECT.

I BEGAN with horse and buggy, going from house to house, and weighing out to each customer as I found sale for it. But that soon proved to be a slow and disagreeable business, as most customers would take only 2 or 4 pounds, and weighing out from the wagon with a spring balance was slow, uncertain, and a sticky, gummy business. I soon quit that, and began buying tin buckets that would easily hold ten pounds. I put that amount into each, and going to the merchants, the lawyers, doctors, and bankers, I would sell bucket and all, charging only a trifle for the bucket. This way was a decided improvement, but still I lost something on the buckets, and occasionally I would find a man who wanted a less quantity; so to accommodate that class, and save the loss on buckets, I went to a tin-shop and bought quart tin fruit-cans and buckets by the dozen, getting them at reduced rates. The quart tins hold 3 pounds, and cost me 4 cents each. I would sell them filled with honey at 40 cents each. I kept the quart tins back out of sight until I found a person who would not buy as much as a bucket of honey, and then I would present them, often making a sale with them where I had failed with a larger quantity.

The gallon buckets cost me by the dozen 10 cents

each; the six-quart, 15 cents; and the eight-quart, 20 cents each, and I would weigh them out to my customers as so much honey, and at the same price, 12½ cents per pound—that is, 10 pounds, bucket and all, at $1.25. I quit going to the dwellings almost entirely, and canvassed only the business portion of the towns.

Allow me to say right here, that I worked hard and made very little money. My expenses were over $2.00 per day, and I lived as economically as I could.

At towns where I was known, no one asked me if what I was selling was pure honey; but when I got further away from home, people began to look me in the eye and ask if that was *bee* honey. I would say in reply, "Taste and see for yourself." "Oh!" they would say, "I am told that it is made now to imitate so closely, that only a chemical analysis will show the difference. Even comb honey is made and filled by machinery so perfectly to imitate the work of the bee as to defy detection only by an expert." This is the fruit of the "Wiley lie."

I have found it more difficult to sell the comb than the extracted honey; in fact, I can sell three times as much of the extracted as I can of the comb honey, even at the same price. At Paducah, Ky., I sold at the same price, and the "*strained*" honey, as they called it, was taken in preference every time.

If we can, by heating and sealing up the honey, keep it from granulating, it would help things mightily; but I am opposed to putting any thing into it to keep it in a liquid state. I want to say, and tell the truth, "There is *nothing* but pure honey in it." May God help us. J. G. NANCE.

Gracey, Ky., Feb. 22, 1890.

Friend N., we have had so many reports in favor of peddling honey that I am rather glad to get one like yours, for I am sure that a great many have tried it and become discouraged. We have tried it at different times, and never made it pay expenses unless our boys took garden-stuff, fruit, or something of that sort, in connection with it. When they began to talk about comb honey made by machinery, why did you not offer them some of our reward cards to settle the matter? Amen to your concluding sentence. May God help us, not only to prosper, but to be honest. Keeping honey constantly in a liquid state, without occasional melting, is a pretty hard matter to manage.

BOTTLING HONEY.

FRIEND MOORE GIVES US SOME VALUABLE HINTS IN REGARD TO HANDLING LIQUID HONEY FOR RETAIL.

PUTTING extracted honey neatly and expeditiously into square glass jars, together with corking, labeling, and tinfoiling the same, may seem at first sight an easy task, but is in reality quite difficult. In the first place, the novice will be likely to daub, daub, daub, from first to last, unless great care is taken, and a pan of warm water and a cloth is kept handy to clean up stray bits of honey; for it is the experience of the writer that honey has a greater aptitude for getting out of place than any other known article, and causes greater annoyance when out of place. One of the greatest aids to neatness is to spread newspapers on the floor at the particular places where honey is likely to be spilled, as between the barrel and the melting-tank, and under the faucet of the can from which we are filling, and between the melting-tank and the can that receives the honey.

Our experience has shown that it is preferable to melt honey out of barrels rather than to use tin cans, for the reason that the expense of the cans is saved, and that barrels are much safer to ship; also in melting the honey in cans (in our large boiler holding two 60 lb. cans), we find it somewhat difficult to get the exact melting-point, and to determine just when the honey must be removed to avoid discoloring or darkening it; for it may not be generally known that honey may be darkened effectually by overheating, even though water be between the honey and the fire.

A solid chunk of 60 lbs. of crystallized honey is slow to melt. In our practice we first remove the head of the barrel, then set it as close as may be to the double boiler, and shovel out the chunks of candied honey into the inner boiler until it is nearly full; then close up all as tight as possible, and subject it to a boiling heat for about one hour. Now dip out into a tin can set conveniently near, and one that is fitted with a large 1½-inch faucet or honey-gate, for removing the honey. This tin can must be elevated to a level with the upper edge of the boiler, so as to avoid spilling the honey; for this one thing we must keep in mind from beginning to end, that honey will spill and daub all over every thing if you give it half a chance. I believe a person may be driven in disgust from the bee-business as surely by daub, daub, daub, as by sting, sting, sting.

When the honey is all melted and canned, we are ready to prepare the glass jars to receive it. These square glass jars seem particularly fitted for retailing by grocers on account of the varied sizes, being 2-lb., 1-lb., ½-lb., and 5-oz. jars, retailing usually for 40, 25, 15, and 10 cts. Here the range of prices suits every one, from the mother who wants only a little for a sick child, to one who wishes a full meal for several persons. Also they are particularly desirable and acceptable to grocerymen because they make neat shelf goods, do not daub, and require no weighing to sell. These jars pack well for shipping, and economize space. In preparing the jars, first wash and reverse to drain, then take each jar and moisten one or three sides according to the size of your labels, and pass the jar to an assistant, who will stick on the gummed label easily and quickly. Gummed labels are far the best for convenience and expedition. After labeling, again reverse in a box so as to exclude dust, until needed; wash and label the entire lot of jars you need at once. This may seem an unimportant matter; but if one does not attend carefully to all the little (?) details, and invent labor-saving methods, he will be apt to find it intolerable drudgery. For instance, in rinsing the jars we dip a jar under water with one hand, while the other hand places one reversed to drip. Thus much valuable time is saved.

When ready to fill, place a tin can on its side at a convenient height, with a slide honey-gate attached. Have a box full of washed and labeled jars at your right hand, and an empty box at your left, to receive the filled jars. With practice one can fill them with great exactness, and without spilling very much. After the jars are filled, drop a cork loosely

on top of each, then take each in turn and press in the cork with the hand. A small lever-press can easily be made for this purpose, if it is found too severe on the hands.

Tinfoiling is next in order. Cut the foil in square pieces, so it will project beyond the bottle an inch on each side. Place the forefinger of the right hand on top of the tinfoil and bottle, to hold in place; with the left hand bring the two corners down so as to lap the neck of the bottle, and press the other portion down smoothly over it. The tinfoil can be easily pressed into position with the hands, and more dextrously and neatly than with any machinery. If you wish to make it very secure, moisten the neck of the jar with mucilage before applying the tinfoil. Now as to the way we tinfoil: Well, we don't tinfoil. We take beeswax 3 parts, rosin 7 parts, and tallow 1 part in 10. Heat and mix thoroughly. Dip in the filled and corked jar ¾ to 1 in.; withdraw instantly, and drip. Set away a few minutes before packing. The mixture must be quite hot, or too much adheres to the bottle. This gives an air-tight covering of a beautiful yellow color, much like the honey within.

Cleveland, O., Mar. 15. H. F. MOORE.

Friend M., one might know by reading your article that you have had large experience in handling honey. I have sometimes wondered that other people said so little about the disagreeable feature in handling honey which you emphasize so well. I have visited bee-houses that were so daubed and stuck up that I could hardly be induced to work in them. Yes, we have had something in our own factory nearly as bad; but I think that most of the hands have learned what to expect when I find such a scene. I think likely I do scold pretty hard when I see men setting their great boots into puddles of honey, and then go all through the rooms with the honey snapping and smacking at every step. I am very much obliged to you for the hint in regard to waxing the corks. We have tried several kinds of sealing-wax, but it did not seem to answer. If the mixture described is just what we want, we shall feel exceedingly obliged to you for the information. Friend Muth has just given us a hint in regard to getting corks into bottles, especially where they are pretty large. Boil them in water, and they will become so soft they can be forced into the bottles as if they were rubber.

HONEY-STRAINERS.

FRIEND M'INTYRE TELLS US HOW THEY STRAIN HONEY BY THE TON IN CALIFORNIA.

DON'T be alarmed at the heading. I mean strainers for straining extracted honey. Who has not been annoyed by a honey-strainer not working satisfactorily when in a hurry? yet no one writes about strainers. Sometimes California honey is so thick it is next to impossible to run it through cloth, or even wire cloth, without the strainer soon choking; consequently a great many devices have been invented to overcome the difficulty. I have visited many apiaries in this county, and did not find two strainers alike. Some have abandoned them altogether, and let the honey run directly from the extractor into the tank, and skim the tank every evening. Others have what might be called a settler; it is usually a tin box about 14 inches square and 12 inches deep, with a tin partition two inches from one side, and running from the top down to within an inch of the bottom of the can. A pipe runs from that side of the can near the top to the tank; the honey passes down under the partition and up the other side, and out the pipe; but the bees, larvæ, and bits of wax, remain on or near the top, and will not pass under the partition. This works well, and will not run over if the pipe is large enough. The reasons I do not use it are, because I must either set my extractor too high to work easily, or cut a hole in the honey-house floor to let the box down; then I don't like to have 80 pounds of honey standing in my strainer all the season, especially when changing from one grade of honey to another; and it is some bother to get the honey strained that is left in the strainer. When friend Root was here he said he would like to illustrate my strainer in GLEANINGS, so I will send drawings and description.

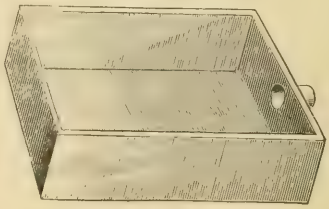


Fig. 1.

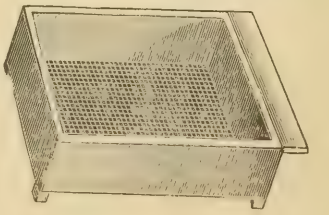


Fig. 2.

M'INTYRE'S HONEY-STRAINER.

No. 1 is a tin box 15 x 18 in. inside, 6 inches deep, with a 3-inch pipe in one end, 2½ inches from the bottom. No. 2 is a box made of half-inch pine, 15 x 16 outside, 5 inches deep. The bottom is wire cloth, 8 meshes to the inch. A piece ½ x 2 x 15 is nailed on one end at the top; a little block, ⅞ inch cube, is nailed on each bottom corner. No. 2 sits down in No. 1, the wire cloth being held ⅞ of an inch from the bottom of No. 1. As the outlet is 2½ inches from the bottom, the wire cloth will be about 1½ inches below the surface of the honey. The honey passes down through the wire cloth, under the end of No. 2, that has the little board nailed on, up under the little board, and out of the pipe. This strainer stands on the floor of the honey-house, and the pipe passes out through the wall to a 7-ton tank outside. The extractor and capping-box stand up 6 inches from the floor, and both empty into the strainer. The strainer has never run over. You see it is a combination of the settling and straining principles. I skim off the bees, etc., once a day, because I do not think it would be clean to leave them longer. I do not have to think about honey running over for a week after commencing to extract, as that is about the time usually taken to fill the tank. I saw some parties extracting last season, where they let the honey run into a pail; and it was

amusing to see them jump when they would forget the pail a few minutes, for fear it would be running over. They have sold their apiary to me since then. I presume the wear and tear of having to watch that pail, and work at the same time, was too much for them, so they sold out.

We have had a yard of rain this winter, up to date, and consequently expect a good honey season. J. F. McINTYRE.

Fillmore, Cal., Jan. 27.

Friend M., you have given us just exactly what I wanted in regard to arrangements for handling honey rapidly, as you do in California. I have tried running it into a pail, and I assure you I never want any more of it. I hope some of the friends in Wisconsin whom I visited will profit by your little bit of pleasantry. When I remonstrated with them for running honey into a pail, ever so many objections were brought up against doing otherwise, such as having to lift the honey in combs if you do not lift it in the pail. My friends, you do not need to do either. Every extracting-house should have a basement. If you can not locate your honey-house on a side hill, I would make an artificial side hill, something as farmers do with their bank barns. Wheel your combs of honey up an inclined plane to the upper room, where the extractor is; or, if you choose, have your honey-tank in a sort of cellar below the floor on which the extractor stands; or have some equivalent arrangement so that your honey will run by gravity out of your way, and let it take its own time to strain and settle. The arrangement described by friend M. seems to me to be about as good as any thing we can get. Our extractors are arranged — especially the shorter ones — for running the honey directly into barrels. I feel quite satisfied, however, that a better way is to run it into a large tank first. Our cheap and simple arrangement of the cheese-cloth bag answers the purpose nicely so far as straining is concerned. The dead bees and bits of comb, etc., fall to the bottom of the bag, and the honey pushes its way through along the sides above the debris. Have several bags; and when one gets full of trash, set it away to drain while a new one is put in the bung of the barrel. If you are taking out honey in great quantities, a larger bag will be needed—possibly wire cloth will be required to give the requisite strength. I am inclined to think, however, that the honey will be clearer and nicer when strained through cheese cloth than through wire cloth.

FASTENING HIVES TOGETHER FOR HAULING.

FRIEND J. A. GREEN TELLS US HOW TO FIX THEM, SO IF YOU TIP THE WAGON OVER THE BEES DON'T GET OUT.

As the season is approaching when many bee-keepers, especially those running out-apiaries, will have considerable hauling of bees to do, it may be in order to add a few words to what has already been said on the subject.

To any one running out-apiaries, or who expects to move his bees to some other locality to catch a honey-flow, it is of the greatest importance to have some method of fastening bees in the hives, and fastening the parts of the hive together that is cheap, simple, reliable, and easily and quickly applied and removed. I hope I may be pardoned for thinking my way better than any that has yet been given.

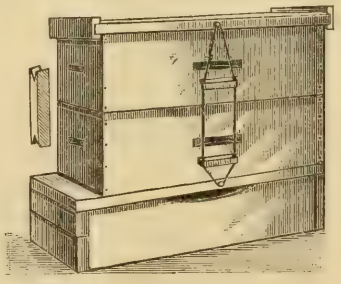
Let me say, at the start, that I would rather move bees in hives with plain square joints, if properly fastened together, than in any kind of hive in which the parts telescope together. In the square-joint hives, if there are any cracks that will let bees out they may be easily seen and stopped up, while in those with telescoping joints I have frequently found, after getting under way with a load of bees, that a crack that seemed tight allowed the bees free passage.

Your Dovetailed hive is nearly enough like mine for the same description of fastening appliances to apply to both.

Into each edge of the bottom-board, just below the middle of the hive, drive an 8-penny wire nail until there is about an eighth of an inch between the head and the wood. Drive two more into the cover to correspond. With these in every cover and bottom board, every hive in the yard is ready to be fastened together securely at the rate of about half a minute to each hive.

Make a loop of stout wire—I use steel bale wire, No. 14—so that it will just slip over the nail-heads from bottom-board to cover. The wire should be spliced with a "telegraph splice;" that is, the ends should not be twisted together, or returned on themselves, but each end should pass the other and then be twisted around it.

Now take two sticks, two or three inches long, with the ends notched. Place these sticks between the wires on one side, and spread them apart until the wires are perfectly tight. If the wire is a little rusty, the sticks, or "keys," will hold better, though I have never known one to slip if properly arranged.



This makes a fastening that is entirely reliable for any ordinary handling or hauling, and by the use of a couple of nails or screws to hold the wires apart, or to keep the keys from slipping, will stand the roughest handling in shipping. Last fall I upset with a load of bees I was hauling down a steep side-hill road, the wagon turning completely upside down, and piling the hives in a miscellaneous heap. No damage was done, except the splitting of the cleats to some of the cover-boards. The frames were at fixed distances, and not a comb was broken.

In moving bees in hot weather, instead of the regular cover I use a frame covered with wire cloth. This frame is made of strips ⅞ square, with a cross-bar in the middle, into which the nails are

driven. The wire cloth is tacked on top of this, leaving a space between it and the frames. For the sake of safety, a thin strip is tacked on top all around, binding the wire cloth securely. It should be so that, when the cover is laid on top, the hive is closed as perfectly as if the wire-cloth screen were not there, and no straggling bees can collect on the wire cloth. If you have many bees to move, you can prepare them a day or more beforehand, without inconveniencing the bees, leaving only the entrances to be closed, the last thing.

For closing the entrances, if wire cloth is used above there is nothing better than a plain square stick of wood, nailed or clamped over the entrance. In cooler weather, ventilation at the entrance is sufficient. To make a block for closing the entrance, take a stick of wood ⅞ square, and as long as the hive is wide. Recess one side ⅜ of an inch in depth, to within an inch of the ends. Now fold a strip of wire cloth in the middle, and tack it on the stick so that the folded edge is even with the projections at the ends. Nail this against the entrance. I have used screw clamps to fasten them on the hive, and like them very much, as, with them, there are no nails, tacks, or screws to be driven or drawn in fastening bees in or releasing them. The principal objection is the expense—five cents each, though they could probably be bought cheaper in quantity. They ought to be among your counter goods.

If you have but little hauling of bees to do, you may not care to have nails driven in all your covers and bottom-boards. In this case, take strips 1 x 2, and as long as your hive is wide, and drive the nails into the ends. Put one of these under the hive, and one over, and fasten as before.

DR. MILLER'S REVERSIBLE BOTTOM-BOARD.

I have been greatly interested in the discussion of Dr. Miller's reversible bottom-board. I can see many advantages in its use, and would certainly adopt it but for these objections. 1. Cost; 2. A hive on it is not so readily picked up and handled as on the ordinary bottom-board. This objection could be partially removed by cutting hand-holes in the side pieces, which would add slightly to the cost. 3. A stand, to keep it off the ground five or six inches, and at the same time keep bees from getting under it, will not hold it as securely, nor can it be removed therefrom as readily, as the ordinary style.

If my objections are not well founded, I hope their fallacy may be pointed out, as I should very much like to secure all their advantages.

Dayton, Ill., Feb. 22. J. A. GREEN.

I am greatly interested in any thing that pertains to a cheap, simple, and reliable method of hauling bees; and, as a matter of course, I have just read your article with considerable interest. Certainly you will be pardoned for thinking that your way is the best; and, on the same grounds, I may be pardoned for thinking that *my* way is still better; for a description of which, see the department of Our Own Apiary, elsewhere. Briefly, my objections to your method of hauling bees are these: First, for convenience you drive four nails into the cover and bottom-board, and, of course, they will be sticking out during the summer, to catch somebody's unfortunate pants. Second, while it is cheap it is not as cheap as the loops I have described elsewhere. Third, the whole tension of the wires is on two nails; and while said nails may be able to hold all the necessary strain, there are times when I think they would not, although I must confess you have put them to a pretty severe test if your wagon was turned bottom upward. I should not want to have such a catastrophe with a fractious colt. If you had had movable frames, as most bee-keepers use, oh my! what a muss you would have had after arriving at your destination! Yes, sir, I think we want frames that will stay where we put them when we move bees, and not "behave like a rattlebox," as R. L. Taylor very aptly put it at the Columbus International Convention.

I believe I agree with you in what you say in regard to Dr. Miller's bottom-board. Without doubt, it has several good features; but in my estimation they are overbalanced by some of its objections. ERNEST.

THE DUAL DOVETAILED HIVE.

WHAT LED TO THE ADOPTION OF THE DOVETAILED, OR LOCK-JOINT, CORNERS.

WHETHER I am the originator of the lock-corner bee-hive or not, I am unable to say, as I so often find others doing the same thing that I am, all unconscious of each other; but this I know: That I made the first one that I ever saw. It illustrates the common saying, "Where there is a will, there is a way." In my case it was a *want* with the will that made a way. Some men prefer horses, politics, or dogs. I have a fancy for bees. When a good friend of mine goes to Florida to look after his orange groves he takes a favorite dog for hunting. When I first went to Florida, in 1876, to be gone from my family several months, I went by steamer from Philadelphia via Savannah, that I might take with me a choice colony of Italian bees, unwilling to risk them in the care of any one. I kept them in my stateroom; but in spite of all that I could do to quiet them they kept up such a roaring as to be heard above the noise of the sea and the ship's machinery, so as to alarm the passengers in the staterooms on either side of me, who, happily, came to me to learn what was going on in my room. I explained to them I was too deathly sick to hold my head up, without doing any thing.

"What have you got in here, making such a hissing noise? Are they snakes that we hear in our rooms?"

I told them they were Italian bees.

"Won't they get out and sting you to death, and drive us all into the sea? They must be real mad. Who ever heard bees make such a noise?"

I had to explain that Italian bees never sting when properly used, and showed them that the hive was covered over with wire screen, so that they could get air, and water from a wet sponge. I begged of them to make no complaint to the captain, and they graciously assented to let them remain, as many people tolerate dogs in street-cars, who have no particular liking for them. In spite of all, three-fourths of the bees died on the trip (of a week); but what I saved cheered many a lonely hour.

By Apr. 1 I had built them up to two good colonies that I sold for $18.00. In my subsequent trips to

Florida by rail I could not take bees in the cars. I would not risk them by express, nor endure the miseries of sea-sickness again, so that I had none there until the winter of 1884, when I wanted to take some choice bees to Florida so much that I determined to do so, rules or no rules. My friends could take their dogs on the passenger trains, and these dogs were a great deal more likely to go mad and bite somebody than my bees were to get away from me to sting anybody. I cheerfully conform to reasonable rules, but I have small respect for prejudice. For myself, I would rather risk the stings of mad bees than the bite of a glad dog.

What has this to do with the Dovetailed hive? It was the need of something light and strong, that would be safe to carry a colony of bees in, in one hand, into a passenger car. A heavy hive that it took both hands to carry would never get further than the platform. Twelve years ago I had a lot of nucleus hives made of stuff half-inch thick, with dovetailed corners, like four-piece section boxes, and glued together without nails, that are still good and strong. Thinking that hives made very thin and light would be warm enough for Florida, I had brood-hives made that weighed only 8 pounds. Eight of these were packed in my trunk, in the flat, with my clothes, and checked free, as others do guns and camp outfits.

Now for the bees: Passenger rules absolutely prohibited the carrying of lizards, toads, or bees, in the cars, that would disturb the nerves of timid travelers. I knew the alacrity with which the Pullman porter would pull those precious bees if they only buzzed; but I entertained a hope that five dollars might find them a stand in the steward's pantry. Remembering the roaring racket of the bees on the ship, with wire cloth over the top of the hive I took a dovetailed body, without bottom, covered it over with wire cloth, and nailed on three strips, half an inch square, to keep it up from the floor, that they might have air from the bottom. I then caged three queens in separate pound sections, partly filled with honey, and set in combs partly filled with honey, and put in all the bees of three strong nuclei, making a good colony. I then nailed the cover on tight and fast, hoping to smother any complaints that I expected from too close confinement; next, to further deaden sound, and mask the affair from the vigilant eyes of men ever ready to bleed one for a dollar, if caught violating rules (I would rather have paid, but bees are prohibited), I wrapped the sides and top of the box in two coats of heavy paper, and fastened on straps to carry it, so that it might pass for a magic lantern, or any thing but a hive of live bees. Nothing succeeds like success. I secured a seat in the middle of the car, by my coat and valise, and waited in the cool air quietly outside until the train was ready to move, when I carried in my pets, trusting that the roaring of the train and the paper wrapping would prevent their being heard. A three-hours' run carried us (bees and me) from Wilmington, Del., to Washington, D. C., without a whimper. As they were so quiet, I carried them aside to investigate, to see whether they were yet alive. A breath blown in at the bottom brought the response, "We are all right; what's the matter with you?" After a few days we went on again to Jacksonville, Fla., and 150 miles south to Panasoffkee, Fla., most of the way in Pullman cars, and the blessed bees behaved so well that not a passenger knew that I had bees in my (bonnet) box, so carefully wrapped up with paper.

It was 21 days from the time they were placed in the box in Delaware until I released them in Florida, when they were evenly divided among the three queens. They commenced carrying in pollen the first hour. There were only 51 dead bees. One queen began laying the second day, and the other two the third day. My intention was to put heavy boxes around the nuclei, as the nights are very cool in Florida. For want of time to do better, I wrapped old newspapers around and over the boxes, to keep them warm, and they just boomed. They were on six frames, which the queens packed with eggs. I had 3 cases of 14 sections each, filled with choice orange honey by the middle of March. Using foundation had increased them to 7 colonies by May 10. I was so impressed with the value of a small brood-nest and paper covering that I tried the same on my bees in Delaware; and the following winter I wrapped all brood-hives with several thicknesses of paper and set a larger hive over them to protect from the wind and rain, and I found it a perfect success where I lived, near Philadelphia, Pa. Every colony put up in paper has wintered successfully with me since I first began. It is safe, cheap, and free to all. I prefer it to chaff, which I had been using for 20 years. If the hive is small enough for the bees to fill it with the heat they generate, and a solid wood cover closed down *absolutely air-tight*, as they prepare it for winter when left to themselves, with several layers of paper wrapped smoothly around the outside of the brood-hive with a double quantity over the top, to retain the heat of the colony. Cover all over with tarred paper or oil cloth, or a larger hive to keep off cold winds and rain, and you can have the benefits of my method with any kind of hive. Keeping the outside dry and the inside warm, *above the condensing point*, with plenty of good sealed honey, bees will boom in time for the harvest. When you take the bees out of the cellar, wrap smoothly several layers of paper around, and twice as much on top of any brood-chamber of proper size, and cover it with any thing to keep off the rain, and you will have my mode of promoting spring breeding; but the paper must be dry; wet, it would be too cold. Not being a manufacturer of hives, I have had to depend upon others to make them for me. After trying nine different planing-mills and a near-by hive-maker (to save freight), and standing over the job to have them made as nicely as a bee-hive should be, I became so utterly disgusted that I procured a patent on my hive, that I might say who should make it. In correspondence with Mr. A. I. Root a year and a half ago, I almost offered to give him the entire thing if he would make and sell it. He answered me very kindly, that he supposed he had it in his attic; and from the new notions that are coming to him almost daily, it is no wonder that he thought so.

I packed the complete model hive (that cost me $8.00 hand made) in my trunk, and brought it to the Home of the Honey-bees, and exposed it to the criticism of A. I. Root, E. R. Root, J. T. Calvert, and J. S. Warner—four as good judges of good bee-hive work as can be brought together. After looking over and discussing the strength of the locked corners, and the feasibility of making it, Mr. E. R. Root asked what I called it. I had no name. As there had been so many hives with grand names, I dared not venture, lest it might have been used be-

fore. I asked him to suggest one. He answered, "As it is two hives in one, I should call it a dual hive," which so aptly describes it I gladly accepted the name, and I give Mr. E. R. Root the credit. Mr. A. I. Root agreed to make the hives for me. I gave him a trial order, and they were *altogether* so much *better* than any that I have had made before, that I am now having 1000 hives made for myself, and can increase it if more are wanted. The lumber is good, and the work I know will be good, made by the very best of machinery by men skilled and trained to appreciate the nice fittings required to make a perfect bee-hive. Mr. A. I. Root is responsible for that.

I have two separate patents now granted, another pending, that give me the right to say who shall make it and know it is well made; and I am determined to sell them in the flat so cheap that no one need wrong themselves or me by making a poor hive; and while they are strong enough to last a life time, they are so light that they can be shipped 1000 miles for the same freight that other hives can be sent 200, so as to have them all made in one place, and all alike. I will be responsible for this.

Washington, D. C., Mar. 24. F. DANZENBAKER.

Friend D., we are glad to know that you have succeeded in carrying bees so well on the cars. Very likely the same preparation would enable them to stand the long shipments we have tried to make to Australia and the Sandwich Islands. Are we to understand that you gave them full ventilation all the time from the whole bottom? If so, I am rather at a loss to understand why they did not roar or buzz as they did in your former experiment. The use of paper to keep out frost in the spring, when bees are breeding very rapidly, is old. You will find a description of it in GLEANINGS something like fifteen years ago. It was adopted by a great many at one time, and there was a good deal of enthusiasm about it; but after a while, quilts and enamel cloth took their place, and now our learned doctors (?) are talking of throwing even these aside and using only a plain flat board over the brood-combs. May be it is all right; but it reminds me every little while of what Josh Billings said: "What is the use of knowing so much when so much that you know is not true?" Never mind. You succeeded in traveling with the bees for 21 days with only 51 dead ones out of a good-sized colony.—In regard to patents, if your motive in getting them is to be sure that all the hives that are used are accurately and properly made, I do not know but that it might be a pretty good thing. But we hope we shall never see you going around among the farmers, trying to sell "individual rights."

OUR OWN APIARY.

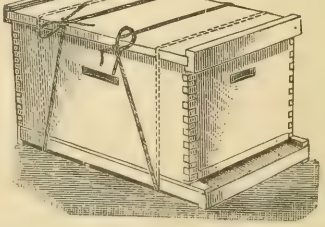
CONDUCTED BY ERNEST R. ROOT.

PREPARATIONS FOR HAULING BEES.

It has been some time since I inserted this department. In the mean time a few have written, wanting to know why I dropped it. Why, bless you, I have not intended to do so; but there have been so many good articles that I wanted to have inserted, I could hardly see how I could make room for it. There has been so much inquiry in regard to moving bees, how to prepare the hives, etc., that I feel constrained to tell some of my experience, because the time is fast approaching when many of us will be moving our bees to out-apiaries.

FASTENING THE TOP AND BOTTOM-BOARD FOR HAULING.

Before telling you very much about our method I present to you forthwith an engraving which will explain the method and *modus operandi.*



DOVETAILED HIVE, PREPARED READY FOR HAULING BEES TO AN OUT-APIARY.

To save time, we first cut twice as many lengths of jute twine, ¼ inch in diameter, as we have hives to haul. These lengths will just reach around a Dovetailed hive transversely, and tie in a bow knot, in the direction of the dotted line. Now, then, with a certain number of lengths thrown over the shoulder, we proceed to a hive, lift the front up, slip one length under, draw it around the hive tight on the dotted line, and tie it. The rear is looped in like manner. Now, then, to stretch the twine taut we draw the tops of the loops toward each other, in such a way that the cord that was at first perpendicular is now stretched to the hypothenuse. After having drawn them as far as you can with your fingers, we take a hammer and drive at the angle on both sides of the cover until the diagonal part of the cord begins to sing like a fiddle-string. Now, the cord we use will hold, before breaking, about 200 lbs. With the hammer we can stretch the cord to the breaking-point if we so desire. I merely mention this to show what a tremendous pressure can be exerted. But we will not stretch it to a breaking-point, but only give it a tension of perhaps 100 lbs. on each diagonal of the cord, which would make a pressure of 400 lbs. on the cover and bottom against the body of the hive. Now, you might suppose that, after the cord is slipped from a perpendicular to a diagonal, it will have a tendency to resume the perpendicular again; but if you will try the experiment on the hive you will find that the friction is great enough to keep the cord at whatever diagonal you may drive it. While doctors Miller and Mason were here I showed them this method of fastening, and they both acknowledged its practicability and strength.

Last fall we moved the bees in the basswood orchard home; and before setting out with a team and platform spring wagon,

with a sort of hay-rack top, we took along with us the required number of lengths of cord. My plan was simply to tie them transversely on the hives on the dotted line as above. After having tied a few of them I saw that I could hardly make them tight enough. While I was thus engaged, Mr. Ward, our teamster, had struck upon a very ingenious plan of tightening them, and that was the method I have already described. I was very sorry that he discovered it before I did. It worked so unique that I wanted to have the honor of it. The plan is doubtless old; but then, you know there is a little fun in using a good thing yourself, even if the other fellow has the honor of first suggesting it.

We hauled, thus secured, more than 50 colonies. The bottom-board and cover would have stood ten times the amount of hard usage we gave them. Without stopping to take the hive up by the hand-holes, we grabbed hold of the cleats of the cover so that you can see that the whole weight of the hive is held by the cords. If the cover-board has any tendency to warp, the cords will very speedily draw them down again tight, so as not to leave a peeping-crack for the bees, to say nothing of the impossibility of getting out and stinging the horses.

You will see elsewhere that J. A. Green describes another method for securing the cover and bottom. Our plan, I think, is cheaper and more secure. There is no expense of wire, of V stretching strips, or danger of tearing clothing from nail-heads. Not a nail is used.

For moving in the fall or spring, it will not be necessary to use the wire-cloth screen, if the entrance is stopped with wire cloth. For summer moving, the screen can be secured with the bottom-board as above. For stopping the entrance we use a device similar to that described by Mr. Green. In the engraving, a narrow strip ¼ inch thick and ⅞ wide, and of the length of the entrance, is used. To this is nailed a strip of wire cloth folded double, to give it additional stiffness. I am indebted to Dr. Miller for this suggestion. A single thickness of wire cloth sometimes may be bent just enough to let bees out. It is highly important that not a single bee escapes.

Since writing the above, Mr. Chalon Fowls, of Oberlin, Ohio, an enthusiastic and prominent bee-keeper, has been visiting at the Home of the Honey-bees. He says he would not have supposed it possible, from the description, that the method described above would hold the bottom and cover so securely. I took him out to my back yard, fastened a cover and bottom, and then asked him to test the strength. He said he had supposed the loop would slip and become loose; but he found that they stayed where they were put.

FASTENING FRAMES.

On page 551, 1889, I described our spacing-strips for fastening movable frames. Next year I propose trying frames at fixed distances, probably the Van Deusen. We have already tested them somewhat in our apiary, you will remember.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE FLORIDA JAY-BIRD AN ENEMY OF BEES.

Do you or any of your readers know whether the Florida jay-bird, or "scrub jay," as some call it, is in the habit of eating bees? I never saw them eat bees till this spring. They come among the hives in the early morning, before sunrise, and seem to be scratching and picking up bugs, worms, etc., and will run up to a hive and pick off the first bees that crawl out. I don't think they eat a great many bees. I disiike to kill them, for I have thought they were our best friends. They are not very numerous, but are very industrious; and, aside from eating bees, I don't think they do any harm, but a great deal of good in picking up bugs, worms, etc., in the garden and grove. J. H. HILL.

Grove City, Fla., Feb 17.

If the Florida jay-bird is any thing like the king-bird described in the A B C book, you have good grounds for thinking that it consumes bees in the same way. I would keep a careful watch if I were you, and let the result decide whether the jay-bird should live or die; and I would not be in a great hurry to condemn him either. I think it is true, that we often make mistakes and kill our friends, mistaking them for enemies—that is, in dealing with the feathered tribes.

IGNOTUM TOMATOES, HONEY VINEGAR, ETC.

Last year my brother, as a subscriber of GLEANINGS, received a package of Ignotum tomato seed, from which I succeeded in raising nine plants. We all think them the finest tomato we ever had. Some of them weighed 18 ounces, and many of them weighed one pound. I also raised some radishes that weighed 4 pounds; were sol'd all through. They were of the Giant Stuttgart variety. I see Mrs. S. S. Kratz objects to the taste of honey vinegar when she puts it on pickles, etc. I used to dislike honey vinegar. I now think I used it too soon. I think it needs to be, as we say about honey, "ripe." But that is not the word to use in regard to vinegar. It needs to be thoroughly fermented, or worked. I have had some experience in making and using honey vinegar, and I have kept pickles, piccalilli, etc., a year. Many of our neighbors come to us to get their vinegar. Some even send from town (4 miles) to get it. I make it from rinsings of cans, cappings soaked, and any refuse honey we have. I strain through cheese-cloth into a barrel, add some soft yeast, and in less than a year we have vinegar that is pronounced by competent judges to be superior to cider vinegar. I never let any comb get into it. Might that not be what gives it the unpleasant flavor?

Black Lick, Pa., Mar. 7. MRS. BELL L. DUNCAN.

I do not think, my friend, that particles of comb would have any effect on the vinegar whatever.

ALFALFA; CHEWING THE HEADS, ETC.

I desire to add my testimony to what has already been said in regard to alfalfa as a honey-producing clover. We have thousands of acres in this little valley, and it grows on the poorest, rockiest soil we have; in fact, I have not seen a place in this valley, where there is sufficient moisture, that it will not

grow, except in a strong alkali bed; and, as has already been said, it blooms profusely; and so sweet are the blossoms, that, in chewing a head, you seem to get two or three drops of honey; but I am of the opinion that the bees can not reach all the honey the blossoms contain. You may guess that it is very sweet, for our bees work on the dry hay in the spring by the thousands. I am not an expert in honey, but I should say that this honey is of the first quality, both in looks and in flavor. I raised 3000 lbs. in 1-lb. sections, of this honey, from 34 colonies, spring count. Many of the farmers in this locality are getting a few bees for their own use. But two or three are producing honey and bees for the market. The L. frame takes the lead here.

Ashley, Utah, Feb. 27. GEO. FREESTONE.

A REMEDY THAT DOES NOT COME OUT OF A BOTTLE, FOR BEE-STINGS.

I notice in GLEANINGS, page 60, that J. F. Crawford uses heat for bee-stings, getting relief. For years I have used the nozzle of a smoker to remove bee-stings, performing a scratching motion, or, rather, a push, to remove the sting, which does not bother me by swelling or itching very much, if removed at once. At times in extracting I could not do so immediately, and the pain would be greater. I used a smoke to destroy the scent. I learned that the heat from a hot smoker destroys the scent, and also relieves the pain very much.

Green Hill, Ind., Feb. 22. J. A. JOHNSTON.

BEE STINGS AND RHEUMATISM.

I was speaking to a lady friend, who is a practicing homeopathic physician, in regard to the bee-sting remedy for rheumatism. From her I learned that a remedy prepared from bees is used in a form of that disease. As I understand the matter, rheumatism characterized by swelling and redness as two prominent symptoms is likely to be relieved or cured by bee-stings; while in other forms of the disease that remedy would be useless. This may, perhaps, account for the conflicting testimonials sent you as to its efficacy. EMILY E. WEST.

Flint, Mich., Feb. 17.

BEST WAY TO REDUCE INCREASE; HOW TO UNITE.

I have 16 hives of bees, which is just double what I want to have, and I have been considering in what way to double them up. My latest idea is to place the contents (10 L. frames) of our hive in a second story, and shall place it over the same number of frames in another hive; cover up, and let them take their chances as to amalgamating or fraternizing, and the strongest queen her chance of life, thinking the bees in the second story will go down below, and those below will come up, empty the second-story frames of honey, take it below, and make a common supply for all. Is that way as good or not, as to take the ten frames in the lower story of one hive and shake off all the bees in front of another hive, letting them go in in front, as in hiving new swarms? W. J. CONKLING.

Springfield, Ill., Feb. 17.

The plan you mention is all right, friend C.—that is, providing you do not care which queen is saved. Wait until the weather is so cool that the bees will not fly much, then set the contents of one hive very quietly on the upper story of the other hive. It is a very rare thing to have them kill each other unless you stir them up into a fighting mood. If the bees should fly the next day, however, a great part of this hive would be likely to go back to their old locality, and it is a pretty hard matter to prevent more or less loss in this way unless you can manage to move one hive, say a mile or more. If the two hives are very close to each other, say five or ten feet, just carry the empty hive away after uniting, and the returning bees will either find a proper hive or divide themselves around in the neighboring hives.

4000 LBS. FROM 60 COLONIES.

I commenced in 1889 with 60 colonies, run mostly for extracted honey. I took over 4000 lbs., and increased to 97. I had but 25 empty hives for my increase, and concluded, when they were filled, to keep them from swarming. But I soon found that the bees had something to say about it. I did all I could, but they swarmed all the same, and I had no hives for them. I put two large swarms into a salt-barrel, two into tubs, four into large box hives, four into log gums, and eight into shoe-boxes. These I concluded to kill and extract, and make wax out of the combs; but when the time came to kill them, my heart failed me, and I put them all into the cave. That salt-barrel is full; one of the tubs is full; and all of the boxes. I shall have a nice time transferring in the spring. I have sold all my honey—extracted 8½, and comb 12½. It has brought me something over $300. This will make over $5.00 per colony, besides the increase. If we count the increase it will make 150 per cent on the capital invested. WM. MALONE.

Newbern, Ia., Feb. 8.

ALFALFA; 15 LBS. TO THE GALLON.

I have only 14 colonies of bees, but I have built them up from one colony. I have had bees since 1886. Some of our best bee-keepers thought at that time that alfalfa did not secrete nectar in this climate. Our wild flowers here produce little or no honey. One year in particular my bees got very short of honey in June; but as soon as the alfalfa commenced to bloom I could see that the bees were putting in honey. Then the alfalfa wa cut, and immediately the bees were almost down to starvation again until it blossomed again in July. Then part of the field was left to go to seed; and they not only put in a bountiful supply for winter, but gave me a surplus of about 60 lbs. to the hive. This year 13 hives gave me a surplus of 108 gallons which weighed *15 lbs.* to the gallon. The honey is very thick, white, and of excellent flavor. It granulates very easily, even in the hives, if extracting is delayed. My bees will fly over a field of freshly blossomed alfalfa to get to some that is going to seed, and I sometimes think it has little nectar in it when it first blossoms. We have a field of 60 acres on our ranch, and all our neighbors raise alfalfa also.

Fort Collins, Col., Mar. 5. MRS. J. ARMSTRONG.

Are you not mistaken, my good friend? The thickest honey I ever heard of weighed 12 lbs. to the gallon, and then it would hardly run. To weigh 15 lbs. to the gallon it would be so thick, even in warm weather, that you would almost have to cut it with a knife. Either your scales were wrong, or else the honey was of greater specific gravity than any thing we have ever heard of before.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 157.—*a. Have you practiced caging queens during the honey-flow, to prevent swarming? b. In your opinion, did it answer the purpose? c. Do you think that the colony so experimented upon produced more honey? d. If the caging of a queen is not entirely satisfactory, do you feel warranted in testing it on a larger scale next year?*

No.
Illinois. MRS. L. HARRISON.

No.
Cuba. O. O. POPPLETON.

a, b, c. No.
Illinois. N. W. DADANT & SON.

I have never tried the plan.
Illinois. N. C. J. A. GREEN.

I have often done it. Removed the queen. It is a good policy.
Michigan. C. A. J. COOK.

a. Yes. b. No. c. No. d. I have tried it two or three times with unsatisfactory results, hence I will not give it any more trials.
Louisiana. E. C. P. L. VIALLON.

Yes, years ago; but I am not sure but more honey can be obtained by letting one swarm issue from each old colony.
New York. C. G. M. DOOLITTLE.

a. No. b. Certainly. c. Yes (?). d. My way of caging was perfectly satisfactory, so I shall pursue the same course next year.
Ohio. N. W. A. B. MASON.

a. Yes. b. Yes. c. Yes. d. We shall cage queens in the future to prevent swarming, and also to secure a larger surplus of honey.
Wisconsin. S. W. E. FRANCE.

No, but I know some one who has. b. No. c. No. d. Caging the queen does not cure the swarming fever. Taking them out, does.
New York. C. P. H. ELWOOD.

Yes, I have caged queens to increase the production of honey, but I am satisfied that the reverse is the result. It does not prevent swarming.
Ohio. S. W. C. F. MUTH.

a. Yes, sir. b. No, sir. c. No, sir, 'ee. d. With my present light and experience I do not wish to experiment further. I think there is a method ahead that will accomplish all we desire, with but little manipulation.
New York. E. RAMBLER.

a. Yes, caged them permanently by pinching off their heads, only when swarms issue. b. It did. c. I do. I shall practice this kind of caging to prevent swarming during the honey-flow and to secure young queens at the close of the season.
Ohio. N. W. H. R. BOARDMAN.

a, b. Yes. c. No. d. Yes, if necessity requires it. Unquestionably, the colony that will produce the most surplus honey will be such as are so managed as to prevent all desire to swarm, and at the same time have a prolific queen to keep the brood-nest well filled with brood.
Connecticut. S. W. L. C. ROOT.

This is one of the interesting plans which I have never tried. I feel a little suspicious that it might not work with me. My bees might build a good many queen-cells, and then devote themselves so assiduously to the cells as to forget about the honey business.
Ohio. N. W. E. E. HASTY.

a. No, but nearly the same thing. I have removed them entirely from the hives. I have experimented in this way for a number of years, but am not satisfied as yet that it would be practical every year and in all localities. b. Yes, it prevented swarming. c. No. d. Yes, I shall continue to experiment on this line until victorious.
Vermont. N. W. A. E. MANUM.

a. Yes. b. Largely. c. No. d. Not unless I have to. Bees swarmed excessively last season; and being short of hives we resorted to caging queens, caging 100 or more. It may be best to do so if we can not control swarming any other way; but if we can control it otherwise, I prefer that the queen be left to perform her regular duties in the hive.
Wisconsin. S. W. S. I. FREEBORN.

a. Yes, hundreds of them. b. Yes. c. No and yes. If the colony had kept their queen laying right along without swarming they might have made more honey; but if they swarmed, less. d. If I can't do any better I'll keep on caging. I like that better than swarming, but I hope some time to find a way to have the queen laying and yet not have the bees *desire* to swarm.
Illinois. N. C. C. MILLER.

a. No, sir; that is one of the things I should not have to practice in order to decide against. I feel sure that I know enough of the instincts and habits of bees to know, without practice, that whoever adopts that method will surely discard it again. Space forbids going into details in regard to the reasons. You try it with not less than twenty colonies until you are thoroughly satisfied one way or the other, and then report; and if you do not say that I am right I will present you a queen that will produce bees as good as any you ever saw, I trust.
Michigan. S. W. JAMES HEDDON.

The above replies are about what I expected. I have always been opposed, as you may know, to keeping queens idle. In fact, I do not believe in shutting up any kind of animated nature, and keeping them from doing something useful. In our apiaries we never have a surplus of bees, because we sell them by the pound; therefore we should never want a queen shut up when she might be laying. Some excellent honey-producers, however, who do not want increase of stocks or increase of bees at certain periods have thought they saved honey by preventing the production of useless swarms. Sometimes I have thought this might be possible. When visiting Dr. Miller I found hives containing caged queens, and watched the whole matter with great interest. I presume he had more than a hundred caged when I was there, and he was for the time quite favorable toward it; but he says since that he does not like it.

However, he decides to keep on caging if he can not do any better.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

RAISING CROPS UNDER GLASS.

The experience of the past winter has convinced me more than ever before, that I, at least, must have some arrangement whereby the glass can be over our crops when it is needed, and at no other time. During the great abundance of rain that we have had for months past, and with the rain, as a matter of course, a temperature more or less above freezing, I would have the glass off the greater part of the time, especially with such hardy plants as beets, lettuce, cabbage, celery, corn salad, onions, etc. I want the direct rain, I want the direct sunshine, and I want the free air of heaven, whenever it can be had without running the temperature too low. By this means we get rid of the green fly and all other insects; we get rid of mold, fungus, and every thing of the sort; and we have absolutely nothing to do with the plants atall, except to interpose the glass when the temperature gets too low. The great problem is, how to accomplish it with the least expense. I should at once decide on having my plant-beds on wheels, and push the beds all outside by appropriate machinery, were it not for the extra amount of ground needed. To avoid this extra space, I see no other way than to have the sashes hinged so they can be turned up nearly to a perpendicular, to let in the sun and rain. None of the plants I have mentioned are injured at a temperature of 40. or, say, down to 35, although the amount of growth is very small unless the temperature is above 50; but 60 is better, and 70 still better, where we want them to grow rapidly. Tomato-plants, however, and other forms of tropical vegetation, would want to go 10 or 20 degrees higher. This season, just as the green fly began to threaten to make us trouble, and just as we began to think of buying more tobacco to fumigate, all at once the little chaps began to turn red, and die; and in a few days pretty much every insect had died off from the effects of this fungus, or parasite, or whatever it may be termed. They stick right on the lettuce leaves, and leave a little spot where they died in their tracks. But this mostly washed off, and now our lettuce is growing unhindered.

Carrying dirt, manure, compost, etc., into greenhouses, where the paths are made narrow for the sake of economy, has been a problem to us. When one of our large glasses gets broken, I have sometimes suggested to the boys, that, before we mend it, we might shovel in a lot of dirt where it is needed. Where a ventilator is over a bed, raising the ventilator affords a ready means of getting in soil. Below is a communication from a brother of W. J. Green, of our Ohio Experiment Station:

A GREENHOUSE HOD.

When the greenhouse was built here at the station, no arrangements were made for carrying or wheeling in the dirt except at the door, and perhaps none were needed, for each opening only makes another place to let in cold air. When we first filled the house last fall, for filling the benches a common bushel basket, carried on the shoulder, was used to carry all the dirt, the walks being such that a wheelbarrow could not be conveniently used; but after wearing out the baskets, making our shoulders sore, and not improving our tempers, the idea came to us that a hod, on the plan of a brickmason's, would be a good thing, and so we went to work and made two that would hold about three pecks of dirt; and now, after having used them to carry in several loads of dirt, I can say that one man can do with these hods just about the same as two men did with the baskets. The ease with which the hods can be put on the shoulder, and be carried, is surprising to any one who has been using a basket. You might just as well ask a hod-carrier to carry his bricks up in a basket as to ask us to carry our dirt in with a basket now. I have been trying to invent a box-hod, so that, when potatoes and such truck are carried a distance, a box might be set on a hod, and be carried; but I have not succeeded yet, and I will leave it to some genius to find out how far the hod principle is practicable. But I believe, as in our case of filling the benches of the greenhouse with dirt, it may be used in other ways, for things must be carried on men's backs, and there is no getting around it; so to find the way to do it, the least expenditure of strength is wise. Our hods are 5 inches at the bottom, 13 at the top, 12 deep, and 2 feet long, with a good-sized stick in the bottom. This we have found to be a good size, but may not be the best. E. C. GREEN.

Columbus, O., Mar. 8.

Well done, friend G. I have been studying on this same matter of an easy method of moving things; and I do believe that, under many circumstances, a light, properly made hod would be an excellent thing for the market-gardener. The potato-boxes are largely used for the same purpose, by placing them on the shoulder; but it is very hard work indeed for me to carry a potato-box full of potatoes; whereas I could get under a hod and carry the same weight with comparative ease. I know, for I have tried it. When some of our boys complained that hod-carrying was very hard work, I have carried a few hods of brick up the ladder, just to see how it went to put myself in their place.

Notwithstanding the exceedingly favorable weather for the growth of all kinds of garden stuff, we find ourselves, this 28th day of March, short of almost every thing in the way of vegetables and plants. Notwithstanding we have a larger area under glass than ever before, the demand is greater than the supply. Our hot-bed sashes made of strips of glass answer excellently, and at the present time we find only one difficulty. When the Brahma chickens happen to walk over the glass, the strips break; the same with a dog, and I think likely a

large heavy cat would break through. This can be obviated, however, by having the strips shorter, and may be a little wider. In other respects they are a success. Beautiful lettuce, cabbages, cauliflower, beets, and other plants, are growing under sashes that have never been moved, and the temperature has been at different times down to five above zero.

PEA BUGS, OR WEEVILS, INFESTING OUR WHITE BEANS; HOW SHALL WE GET RID OF THEM?

I do not remember just how many years ago it was, perhaps not more than three or four, when some of the boys and girls told me that our *beans* were "buggy." Of course, everybody knows about *peas;* but buggy *beans* were something new at the time. Well, of late our beans have been getting buggier and buggier, until during the present season we have several bushels that it would have been better to have boiled up and given to the chickens in the outset. When we first began to find a few of them buggy they were carefully hand-picked, and the buggy ones were boiled for the chickens. Pretty soon the same lot were buggy again, and now they have been picked over three times; but we have little assurance that they will not continue to get buggy as long as they last. One of the women remarked, when picking them over, that some one said at a meeting of the Summit County Horticultural Society, that all beans planted after a certain date, she thought it was some time in June, would be in no danger of bugs; and then I remembered that we had, during the past season, planted a lot of white beans so late that a good many told me they would not ripen so as to become dry. They did, however (the greater part of them), and we had several *bushels* that were *not buggy a bit.* There has never been a bug among them. This is one point that I wish friends Cook and Green, of their separate agricultural colleges to enlighten us on. Another thing, can the live bugs, or weevil, do any harm to *dry* beans or peas? I suppose they can not, of course; but some of our friends in the seed-room are inclined to insist they can. I confess that I do not like to see the bugs flying around the room, neither do I like to see a lot of them in our bags; but so far as I am acquainted with their natural history, I should say they can do no harm unless they are allowed to fly when the beans are in blossom. Very likely, should we plant buggy peas or beans, the crop would be buggy. Now, friend Cook, you know every thing about bugs—just tell us a little about this bean-weevil, so that we may know how to fight him effectively. Ever since they pestered us we have been putting a little pyrethrum powder in the bags, and shaking them up. This kills the bugs—that is, all that are hatched out. Some of you may ask, "Why, Mr. Root, are you sending us buggy beans and peas to plant?" No, my friend, we are not. Our seed peas are raised in localities where they do not have bugs; and our beans will hereafter be raised so late in the season that the bugs will not trouble them—that is, if planting late will fix the matter.

TRANSPLANTING-TUBES.

LAST summer I had occasion to transplant some small evergreen-trees, raised from the seed in a box. I made a transplanting-tube similar to those you have described in GLEANINGS, and tried water, as you recommend, to let the tube slip. It did not suit me, perhaps because the soil here is different from yours. At least, I thought that, for occasional use, with only one tube, it took too long time, and, in removing the tube, the soil—being loose and sandy—crumbled away from the roots of the plant.

I then made another tube, which would fit easily inside the transplanting-tube. This inside tube has a flange, one-fourth inch wide, at each end, the flanges turning in toward the center. The outside tube (regular transplanting-tube) may have a wire in the upper rim to stiffen it; or a narrow flange turning outward will answer the same purpose, and will, besides, serve as a handhold by which to lift the tube. Instead of either wire or flange, I simply put on a couple of ears near the upper end of the tube, and opposite each other. To use the tubes, I take up the plant, as usual, with the transplanting-tube (having the ears); set it in the hole previously made to receive the plant; replace the soil and pack it firmly around the tube. I now push the inside tube over the plant and down into the transplanting-tube until the lower flange rests on the surface of the soil surrounding the plant. Bearing down on the inside tube, I at the same time, with a finger in each ear of the transplanting-tube, lift the latter up. A few pats with the hand firm the surface of the soil, and the job is done. I set the plant a little lower than the surrounding surface, so that a cavity the size of a wash-basin is left round the plant, into which cavity water is poured immediately, and later when required. I keep the tubes in the pail of water, which I carry with me, to keep them clear of sand and grit. I used the same tubes with great satisfaction for transplanting tomato-plants.

Where a number of transplanting-tubes of the same size are used, one inside tube will, of course, be sufficient for each operator. The idea is not new. I heard about it years ago in Los Angeles, where the implement was recommended for transplanting young fruit-trees from nursery-rows. I never saw the tubes there, but they were described to me as being made of sheet-iron, the size of a stovepipe or larger, and strong enough for a man to put his foot on the flange of the transplanting-tube, and, by his own weight, push it into the ground. I understood there was a patent on the apparatus; but if so it has probably expired before this time.

In very mellow, firm soil, not liable to crumble or cave, a third tube, a trifle larger than the transplanting-tube, might be used for making the hole to receive the plant. This would be desirable where plants stand close together, and where a dead plant has to be replaced by a live one, in order not to disturb the soil more than necessary.

I made my tubes out of cans which I had on hand, and which happened to fit each other. The can for the inside tube had a hole cut in the top and bottom with a circular can-opener, leaving the flanges one-fourth inch wide. The larger can, which was made with a loose cover, simply had the bottom melted off and the ears put on. This is 3 inches in diameter and 6 inches deep; but the size may be varied to suit circumstances and convenience.

WM. MUTH-RASMUSSEN.

Independence, Cal., Feb. 15.

MYSELF AND MY NEIGHBORS.

Unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath.—MATT. 25:25.

Friend Root:—In my lesson for the family worship a few nights ago, I read the following: "To him that hath, more shall be given, but to him that hath not, it shall be taken away what little he hath." Is it really so, that God takes away every thing we have, just to make object-lessons of us, so as to fulfill the above words of our Savior? About a year ago we met with some heavy losses in business; and as one venture after another has failed, and one thing after another has had to be sold to pay some debt and keep the wolf from the door, it seems as if truly in our case the above words are being fulfilled. I could bear it myself; but when the good wife gets discouraged, and wishes she had married some one better able to support her, it is a little hard to bear. I am willing to work hard, early and late, to again get a foothold; but how can we keep up the courage of those that are near and dear to us? Thinking that perhaps you would have a good word for me (as you seem to for every one) is why I write.

Dear friend, I am very much obliged to you indeed for the compliment you pay me in thinking that I may have a good word for you. May God give me grace and wisdom to answer you wisely. The text that you quote follows immediately after the one that has been through life one of my bright and shining texts. I suppose that our readers are well aware that it follows the parable of the talents, given in the 25th chapter of Matthew. The same thing is also substantially given in the 19th of Luke, although the details are a little different in the two accounts. The main thought and lesson to be gathered, as I understand it, is faithfulness in service, or, in other words, making a good use of that which is intrusted to our care. The text that has given me so much comfort is in Matthew: "Thou hast been faithful over a few things, I will make thee ruler over many things." In your lesson for family worship, you of course read the whole parable of the talents; and in view of that, dear friend, I can hardly understand how you could interpret it as you do; namely, that the Lord had taken away these things from you just to make an "object-lesson." I am afraid your faith is waning, dear brother. God never takes away any thing from us simply that the Scriptures may be fulfilled. Far from it! On the contrary, we are told that God will withhold no good thing from those who love him.

A few weeks ago at a farmers' institute, friend Terry, in one of his talks about poor, slipshod, heedless farming, made a remark that such cases verified the Scripture text, "Unto every one that hath shall be given;" "but unto every one that hath not, shall be taken away that which he hath." Some one in the audience called out: "Mr. Terry, do you believe in that kind of doctrine?"

His reply was, substantially:

"Yes, my friends, I do; that is, if you put it in this sense: The man who lets his manure heap lie out in the rain so that the drainings may go off into the highway will surely lose what little he has. You may say God will take it away from him, or, if you choose, you may say that in the ordinary course of events, or in the nature of things, his poor run-down farm, that is hardly worth taking as a gift, will go into other hands. On the other hand, he who takes proper care of his manure, and saves every particle, both liquid and solid, and handles it with economy, and judiciously applies it to the very places where it will do the most good, shall be prospered. God will give him abundance, to be added to what he already has. Or, to put it as before, in the course of events, or nature of things, he will *continue* to accumulate property to make his farm more valuable, and comfort and peace will be around him."

If friend Terry is not satisfied with my version of his remarks, I hope he will state the matter himself.

And now, dear brother, instead of its being true that God takes away the things you mention, is it not just the reverse? You may think that I am hard and unkind; but, dear friend, you have come to me, and I can not shirk responsibility. The physician or the surgeon who cures, oftentimes gives pain; and I feel constrained to speak plainly, because others have written to me much as you have done, and thousands in our land are now complaining of their hard lot. Foremost among them are the farmers whom friend Terry has been urging to better ways and to better work. Is it God who afflicts, and why does he afflict?

You say you have met with some heavy losses in business; and a little further on you say, "One venture after another has failed." Now, dear brother, perhaps you did not mean to use that word "venture." I gather that you are a Christian—one who reads the Scriptures, and asks God to help day by day. If so, is it not possible that you have been depending on "ventures" rather than on the hard faithful work that you speak of further along? I do not believe that Christian people have a right to make ventures. I say this, using the word in the sense of speculation. A great many of the so-called ventures are made by going in debt; and oftentimes if we listen to old experienced business men they would say emphatically, "*Let it alone.* Don't go into any such speculation." I know a good many young business men are in the habit of doing their own thinking, and not consulting the veterans around them. I am sure, however, that it is wrong. A great many heartaches would be saved if our young business men would consult older heads before making ventures. In your respective churches you have old and successful business men. I never knew of a church that did not contain more or less such. Go and consult them. A great many times the pastors are in position to give wholesome counsel. The deacons of the church are almost always capable of advising wisely. Of course, it is not absolutely necessary that you go to a member of the church; but as a rule I have found professing Christians con-

scientious. Now, my dear brethren, you need not smile with superior wisdom, for you will have to admit that I have had more business deal with all classes of people, scattered all over the world, than most of you; yes, perhaps more experience in trusting professing Christians and non-professors than most business men in the world. With this experience before me, I advise you to go to some church-member in good standing. I can not think of a business man in all my acquaintance who would not pleasantly and good naturedly advise a young man. While I write I have in mind a number of young men who started out in the world fairly, but who have become soured and cross—perhaps have lost faith in humanity and faith in God, because their "ventures," as our friend terms them, have, one after another, turned out very much as described in that brief little letter above.

I find I have unconsciously been talking to the writer as if he were a *young* man. May be it is a mistake; but I judge he is. If so, there is hope for him yet. Yes, there is hope for him any way, even though he be 80 or 90 years old, if he hold fast to the Scripture and take it as it reads, and not blame it for what he alone is to blame for. Of course, I know nothing about the circumstances. I can not remember that I have ever heard of or from the writer until to-day; but I feel safe in assuming that the reason why one "venture after another has failed, and one thing after another has had to be sold," is because he is guilty in something the same way that the farmer was, whom friend Terry was speaking of—guilty in letting the manure and other things go to waste. Many a young man is diligent and industrious, and saves his money until he begins to think he is old enough to go into business. Then he begins making "ventures." If one venture turns out bad, another one is pretty sure to present itself that looks all right. He makes haste to get out of the first one—may be sells unwisely at a sacrifice, so as to embark in the second. Then a third follows suit, and finally he begins to blame his friends; may be censures his good wife, and finally complains of the words of Holy Scripture, that would lead him from darkness into light, if he would take it as it reads. "Thou hast been faithful over a few things, I will make thee ruler over many things." Just hold fast to that promise, dear friends, in trouble, and I assure you that the light of prosperity, and the light of God's love, will soon beam down upon you. Don't aspire to great things—that is, for the time being. Don't strive to do as others do. Live according to your means, and be diligent and faithful in the humdrum duties of every-day life. Do not get weary in well doing.

At the present time there seems to be a great mania for speculation. Farmers become uneasy and dissatisfied, and Satan pretty soon finds some mischief for dissatisfied ones. Will our farming friends please remember that it is not the *farmers* alone who are having a hard time? In the letters that come to me daily I hear as much complaint of hard times, and of the difficulty of making an honest living, from those in towns and cities, and in the different avenues of trade, as from among farmers. Grocers say that profits are cut down so small that no one can live. Some of them complain of foreign competition, and want the products of their brothers across the ocean taxed, or a tariff put on the product of their industries. There are others who complain that the newspaper writers, or those who are employed by the state or government, are the only ones who have an easy time. Please do not, dear friends, listen to Satan's suggestions in this line of work. Could you see the piles of rejected manuscripts that lumber our desks daily, you would not think that writing for the press is an easy way of making a living. It is a very good and safe way, I admit, *after* you have mastered the business, and have learned by hard experience and long study to be able to furnish something that commands good pay at sight. We must be faithful over a *few things*, before we can become ruler over many things.

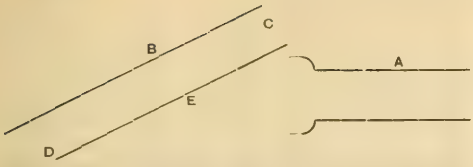
Just now there are more people coming here begging for something to do than perhaps at any one time before. The warm winter and the bad state of the roads have been a clog to business, and this accounts, perhaps, somewhat for the condition of affairs. But as I turn them away, one after another, almost hourly, it really pains my heart to know that we are even now in *need* of *competent* help. How do I know, you may ask, but this very help that is offered might not be just what I need? I know by repeated trials and experience. Once in a while we get a jewel; but as a rule, we get ninety-nine men who are not jewels before we get the hundredth. I do not wish to censure or blame these people, for they may have had experience in some kinds of work, but not in a line where *we* want them, and in most cases nothing but the drill of our own business makes them competent. We have quite a few now in our establishment who get a thousand dollars or more a year; but they acquired their skill by *years* of service. A great many who come to work for us complain if they can not have the highest wages after a few *months'* experience; and when I try to explain the matter pleasantly to them they become offended, and say hard things of me. I quote to them over and over again my favorite text, "He that is faithful over a few things shall be made ruler over many things." But they reject it, and try to find a place somewhere else. Perhaps they go in business by themselves, and then learn by sad experience that the things which I demanded, the world at large *also* demands, and that "there is no excellence without great labor." In the same parable from which I have been quoting, there is mention of a poor fellow who received only one talent. His lord very likely knew at the outset that *one* would be all that it would be wise to intrust him with. In the end it turned out that he was not worthy of having charge of even one talent. He did absolutely nothing with it. Very likely he proposed doing

something to-morrow or "next week," and it was put off and allowed to lie just like the manure heap that friend Terry told us of, until, in the course of events, reckoning time came and he was asked to report. Of course, he felt cross, as slothful and lazy people always do. He finally got up a poor feeble excuse for his wrong doing, and commenced to put the blame on his lord. He says, "I knew thee that thou art a hard man," or, in other words, "I knew at the outset that you would beat me in some way or other, and that there was no use in expecting any thing like fair treatment, and so I just laid it away." It is the old, old story that we have had since the time of Adam. When God called him to account for his transgression he commenced first by blaming the woman and then the God who gave him being, while he *himself* was the guilty one. Who can tell what might have been the result to the whole human race had Adam been *manly* when first called to account?

Now, then, dear friend, I have got almost through finding fault, and censuring one whom I really know nothing about. I wish, however, to take you to task once more for the expression you let drop in regard to your good wife. You say she "gets discouraged, and wishes she had married some one better able to support her." Now, my dear brother, I am sure that a wrong spirit was in your heart when you penned those words. I have never known a woman who was not willing to bear and suffer for her husband's sake, even until forbearance seemed to every one to have ceased to be a virtue. I gather from the sentence that you have let drop, that you and your wife have had something approaching unkind and unpleasant words. I fear that Satan has been tempting you to censure each other. Please do not let such a thought get into your heart again. I think very likely your good wife is right and you are wrong. In fact, I almost feel certain she has objected to your "ventures" as you term them; and I am quite inclined to think that, had you listened to her, and followed her advice, all would have been well. Did you not exaggerate when you guessed that she had *even once* harbored the faintest wish that she had married some one else? If you want my advice, it is this: Go to her and ask her forgiveness; then, hand in hand, you two should kneel and ask God to forgive you both. Having done this, get up and grapple manfully with the duties of life. Work hard, early and late, as you suggest. But, O my friend! do not indulge in ventures or speculations. Do faithfully and well what your hand finds to do. If you have not work of your own that pays, go and work for some one else. Work that is done with the fear of God in the heart, can not fail to be appreciated. The little text you have quoted to me as a stumbling-block may yet be your bright and leading star. Read that parable over again, from beginning to end. Take the words of our Savior as he meant them, and let them be your help and prop in times of trial and adversity. Do not find fault with your wife; do not find fault with your "neighbors;" do not find fault with the great outside world; do not find fault with the laws of our land; and especially, dear brother, do not find fault with the Holy Scriptures, the inspired word of God; and above all, do not let Satan persuade you for a single instant that Jesus, who came into the world to *save* sinners, ever thought of taking away the things you hold dear, simply for an object-lesson. "All things shall work together for good to those that love God."

At the risk of saying something that may sound like finding fault with the good people whom I meet day by day, I want to give you a simple illustration of the reasons *why* people have trouble; yes, I want to illustrate exactly why the state of affairs described in our text comes about. Some months ago two good strong men came to me seeking employment. One of them had had trouble with his former employer, and I soon discovered why. The other one took hold so willingly and with such energy that I was a little puzzled to know why he should be out of a job at all. But ere many days passed I thought I knew why. In order to get our insurance down to a low rate, we have, by the advice of a company who make it their business to insure factories, been putting in some extensive improvements in the way of waterworks. After being fully equipped with the sprinklers described in another column, we were also desired to provide a stationary fire-engine, or steam-pump, communicating with four large fire-hydrants. These hydrants are situated far enough from the buildings so that they can be worked safely, even with the building on fire. They are to protect also the lumber-yard, the depot buildings, and any other outside influence that might communicate fire to our factories. To furnish water for these hydrants we were obliged to lay six-inch cast-iron pipes from the steam-pump to their vicinity. At one place these heavy iron pipes were to go down something like six feet under ground; but by some mistake the trench was not dug on just the right line. The men who laid the pipes declared the trench must be filled up and a new one dug. As the ground was frozen, however, this would have been a laborious piece of work. I suggested that we cut out under the bank, so as to get the pipe in place without making a new trench. The objection was made, that the bank would cave down. I replied that it would not so long as the ground remained frozen.

The two men were set at work at it, and by 11 o'clock they had it in nice shape for laying the pipe. As I examined the work I told them to be sure to get the pipe in place before they went to dinner, because, if the sun should come out it might thaw the bank so as to let it break down. They replied that they would be sure to do so. When I finished my nap before dinner, my first move was to see to the pipe-laying, as I noticed there was a break in the clouds, indicating that the sun might come out very soon. Let me ask you to look at the diagram on the next page, so as to understand the situation of affairs.



WHY SO MANY PEOPLE ARE OUT OF WORK.

Pipe A was in place, and covered with dirt. Pipe B was the one that came under the bank; and as I came in sight the men were carrying it to its place. One had hold of the pipe at D; the other had hold of C. Fearing they would step on the bank where it would not bear much weight, I ran for a rope and was just in time to put it around C, giving one of the men the ends to hold. I stayed by him until I saw it lowered until it struck the end of A. Then I went away to attend to others who might need my direction, and forgot about the pipe. As soon as I finished my dinner I went out to see if the pipe was all right. One of the men was on hand, and informed me that the bank had caved in. "Well," I replied, "it does not matter much, if it did. We got the pipe in place just in time, didn't we?"

He pulled off his hat, scratched his head, and answered a little slowly, "Why, Mr. Root, we did not get it quite in place."

"*You didn't get it in place!*" said I. "Why, I stayed with you until I heard the end of the pipe strike the bell where it was to go in."

"Yes, I know you did," said he; "but before we got it quite in place the whistle blew for noon, and we had to stop."

I presume very likely my temper came up a little just then.

"Why, Mr. ——, one minute more would have been ample time to have drawn the pipe back until the end would go into the bell; and yet because the whistle blew, you two great men went away and left it right there; and this, too, when you could plainly see that the sun was shining right on the frozen bank; and the way it is thawing now must very soon have let it down."

"Yes, I know; but the other man would not stay any longer when the whistle blew, and I could not get the end in place alone, so it had to be left until after dinner."

I went to the other man, and demanded of him why he went away, even if the whistle did blow. He said the *first* speaker was the one who went away first. I left them disputing as to who it was that first abandoned the job when the whistle blew. Please notice, friends, that the rope was around at the point C. The man on the bank had an end in each hand. All he needed to do was to raise up until his comrade could draw D back two inches, and then push it into the bell. Had I been present, one *minute* of my time would have saved a hard *half-day's work* in the mud. Thus it is: there is no lack of *muscle;* but, O my friends! there is a *constant lack* of men to *superintend* — men who love their "*neighbors*" more than their "dinners." Now, mind you, the ability to superintend must be *acquired.* It is the result of being "*faithful* in few things" for *months* and *years.* "He that overcometh, and keepeth my works unto the end, *to him* will I give power over the nations."

The men both felt quite bad, and suggested that they could take a crowbar and pry the pipe back enough to let it go in place. I showed them, however, that this could not be done, because a great quantity of dirt had fallen under the pipe at E. One reason why I did not want to dig a new trench was because a great heap of ashes lay over the bank that had caved in. This heap of ashes I wanted to spread over our grounds; and now it had gone down with the bank, right over the pipe. I have read somewhere of a man who was carrying a hod full of bricks to the top of a very tall ladder. When the signal for dinner sounded, he dropped the hod full of bricks, and hurried down the ladder because it was "quitting time." The latter, of course, was an exaggeration; but there is a grand moral in it nevertheless. Some people, when they work, study the interests of their employer, whether it is quitting time or not. There are others who seem to have very little care or regard for any thing beyond receiving pay every Saturday night. It pains me to write these words, dear friends; and I am glad to be able to say that the operation of laying the cast-iron pipe, described above, is the worst case of the kind I remember in all my business experience, although we do, however, see it cropping out in little things almost daily. Some of you may suggest that I should have required these men to dig up the pipe and put it in place on their own time. I thought of it, but I am very glad now that I did not do it. It has never been my custom to oblige a full-grown man to make good any loss unless he chooses to do so of his own accord. My daily prayer is, that God may forgive my debts as I forgive my debtors; and had I not forgiven them it would have troubled me afterward. I will say this for them, that they seemed to feel very badly about it; and I tell you, that caved-in bank went out in a hurry. Before they got done with the pipe-laying, their clothes were pretty muddy; and when quitting time came, one day after the ditch was finished I gave each of them half a dollar extra, telling them to give it to their respective good wives, to make up for the trouble they would have in cleaning the mud from their husbands' clothes. I preferred to do this, that they might rest assured I had no grudge laid up against them, even though they did a very foolish thing in leaving the pipe as they did.

Now, then, friends, we are all working for *somebody.* We are all working for the great wide world; we are all working for "our neighbors" in some sense or other. If the prevailing motive is *self,* then shall the concluding words of our text be true: "But from him that hath not, shall be taken away even that which he hath." If, however, your first and foremost and inspiring motive is to work for the interests of the *great world* instead of for *self,* and instead of self for *Christ's sake,* then shall the first part of our text be verified: "Unto every one which hath shall be given, and *he shall have abundance.*"

GLEANINGS IN BEE CULTURE.

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Take heed therefore how ye hear; for whosoever hath, to him shall be given; and whosoever hath not, from him shall be taken even that which he seemeth to have.—LUKE 8:18.

THE new and again enlarged edition, the 42d thousand, of the A B C of Bee Culture, will be out in a couple of weeks.

BUSINESS IN THE OFFICE.

WE have not thought to mention it, but there are now five standard Remington type-writers that work constantly in our office, and other things to match. Two of them are in charge of men, and three in the charge of ladies; and I tell you, they make quite a clatter. May be the rest of you don't think of it, but I do; and as I read the mail that come into our office, and that which goes out, I often thank God for our modern improvements.

SELLING GLUCOSE FOR HONEY.

OUR enterprising friend T. H. Kloer, of Terre Haute, Ind., in concert with the editor of the *American Bee Journal*, have hunted up and thoroughly exposed "Albert Botsford Co.," in their work of putting a chunk of broken comb honey in a jar and filling it with glucose, labeling it "*pure clover honey.*" We recommend that the whole matter be placed in the hands of the food commissioners of the State of Illinois, and let them deal with the culprits. When friend Newman called on them they only claimed it was "two-thirds honey," notwithstanding the label. They even had the audacity to try to sell some of it to the *editor of the American Bee Journal.*

BRONZE MEDALS AT THE PARIS EXPOSITION.

IN the Agricultural Department of the Paris Exposition we note that the following were awarded bronze medals for various exhibitions made. We do not discover that any one in said department was awarded a gold medal, although there were several silver and gold medals awarded in other departments of agriculture.

A. J. Cook, Lansing, Michigan.
G. W. Demaree, Christiansburg, Ky.
W. T. Falconer, Jamestown, N. Y.
G. L. Tinker, New Philadelphia, Ohio.
A. C. Tyrrel, Madison, Neb
James Heddon, Dowagiac, Mich.
C. F. Muth & Son, Cincinnati, Ohio.
Newman & Son, Chicago, Ill.
A. I. Root, Medina, Ohio.
Jas. H. Van Deusen & Sons, Sprout Brook, N. Y.

BROKEN-DOWN COMB HONEY; WHO WAS TO BLAME? THE REMEDY.

WE have just received a consignment of comb honey, consisting of ninety-four 24-lb. cases, only six of which arrived in good condition. The rest were broken down. The honey was transferred once, and this transfer meant hauling by a drayman. The shipper failed to put on caution labels, giving directions in regard to the handling of honey, both in a dray and in a car. The honey *might* have been broken down just the same with the labels, but the probabilities are that it would have come through safer. We had to unpack all the cases, pick out the pieces of comb, wipe off the drip, set them in wooden butter-dishes, and now they will have to be sold at a sacrifice. The cases had to be washed, and the now empty sections are piled up in front of the boiler arch. Railroad men are careless, but we must not blame them too severely when bee-keepers *themselves* are largely responsible for broken comb honey. At our State Convention at Cleveland, Dr Miller, in giving directions for shipping, emphasized the importance of having a starter fastened to the top and *bottom* of the section before putting it in the hive. This insures the attachment of the comb, not only to the top but to the bottom. In putting in your foundation this spring, please bear this in mind, and save yourselves and consignee trouble and expense. Dr. Miller shipped 12,000 pounds of such honey last fall, and not a section was reported broken. The leading article, by Chas. F. Muth, contains some valuable suggestion on shipping.

THE GRINNELL AUTOMATIC SPRINKLERS.

THE above apparatus for protection from fire is now put up through all of our various buildings. Pipes run along the ceiling overhead in such a way as to communicate with the sprinklers, so they are not more than 10 feet apart all through the premises from attic to cellar. As I write, the windmill up on the hill is very busily at work keeping the great tank replenished with water. Suitable pipes connect this tank with the sprinklers before mentioned. To-day our noon service was shortened five minutes that we might witness the operation of testing the sprinkler system. Mr. Blake, the foreman of the men who put the apparatus up, informed me that five minutes would be ample time to build the fire and let the apparatus extinguish it. In one of our lower rooms which is paved with brick, a fire of shavings was started. When the flames began to roll up against the ceiling to such an extent as to make it begin to look dangerous, a little explosion announced that the sprinkler had opened up. Then came a rush of air for about a minute, when the water promptly followed. The fire was very soon wetted down and extinguished; but the machine kept on throwing water until the spectators scattered in dismay, clambering up on boxes and back into corners. Not only was every portion of the floor wetted, but even the ceiling overhead. As soon as the electric alarms sounded the signal, the water was promptly turned off; but before it wound up, the floor was covered with water, and every thing within a circle of 25 or 30 feet was dripping and soaking wet. As these sprinklers are only ten feet apart, the effect of opening a great number of them would be to literally *drench* not only the floor and contents, but the *ceiling* as well. When the matter was first talked of, I gave, as an objection, that the machinery would become in time old and rusty, so it would not work. But, please bear in mind that the whole apparatus is bright, dry, clean, and new, and it remains so indefinitely until a fire or something else warms the sprinklers up to a temperature of 160 degrees. The electrical alarms that give notice of the fire are three in number. One is in the engineer's room,

the second in the room where the watchman stays, and the third is in our bedroom over at the house. These are for the purpose of giving us notice, not that the *fire* needs attention, but that the water must be looked after, and turned off when the fire is out. If nobody should be around to turn the water off, I suppose the contents of the great tank on the hill would be gradually sprinkled over the spot where the fire was. Further particulars of this wonderful apparatus may be had of B. W. Dawley, 115 Monroe St., Chicago, Ill., Providence Steam and Gas Pipe Co.

THINGS NOT NECESSARILY USELESS BECAUSE OLD.

ALL sorts of devices are being sent to us as improvements over the common accepted implements. With almost hardly an exception these things are old; and it begins to seem as if it were impossible to invent something new in bee culture. But because a thing is old it does not necessarily signify that it is valueless; but in a great many cases the rule holds true. But things are changing a good deal. What we a few years ago deemed impracticable and unnecessary—"too complicated and too much machinery"—quite possibly may be just the thing we need at the present time; or if not at present, in the near future. For instance: A few years ago a great majority of the bee keepers would not tolerate frames at fixed distances. At that time out-apiaries and moving bees had not begun to assume the importance that they do now; but it begins to look as if bee-keepers at large would generally demand a frame that will be held at certain distances apart, and *stay so* whether the hive is to sit upright or on its side; whether it is to remain quietly on its stand, or be jolted over a rough road.

It is true, that a good many valuable devices have been suggested in the past; but as the times were not ripe for them, they lay dormant until they were. Take, as an illustration, the thick top bar. It was suggested years ago, and now is coming into prominence. While Dr. A. B. Mason was here he told a little story that bears somewhat on the point. In or near Toledo, in the present gas-field, some old fellow, after he had dug his well to pretty nearly the required depth, discovered there was a hissing noise. As it was a little dark in the well he determined to take a light down and investigate. He had no sooner got his candle down near that strange hissing noise than he was "fired" out of the well as from the mouth of a large cannon, and, strangely enough, he landed on the surface of the ground without injury. Neither he nor any one else stopped to reflect that it was natural gas, mixed with common air, in the right proportion to produce an explosion. The times were not ripe yet, and the superstitious people declared that the spirits held possession in the depths of the well. Without further investigation the owner filled the well up, burying one of the greatest treasures that has ever been given to mankind, and concealing for many years to come something that has blessed the world during the last two or three years in the form of natural gas. If superstition had not been rife, and the spirit of scientific investigation had prevailed, folks would have wanted to know what threw that fellow out of the well. The result would have been natural gas years ago, and the poor well-digger and his neighbors might have been immensely wealthy. Dr. Mason tells us that within the past year this old well has been resurrected, and is now one of the profitable gas-wells, doing good service and blessing community.

Just think how *near* many times we approach the discovery of a valuable idea; and yet, even after the thing is presented to our very eyes, we reject it until the *ripe* time has arrived. Let us not be discouraged, then, friends; even if things are old, may be they are good. The only sad thing about it is that, if we wish to patent the idea, we can not do it, that is all, because some fellow away back in the '60's illustrated and described that very thing, but the world did not see the point. E.

SPRAYING FRUIT-TREES.

As the season will soon be upon us, it may be well to consider this matter of damage to bees by unnecessary and useless spraying of fruit-trees when in blossom. The matter has been brought up so many times, and it has been so fully explained by our experiment stations that there is no collision at all between fruit-growers and honey-producers, it seems as if everybody should understand it. We will go over it again, however. It has been fully decided, by competent authority, that the proper time to spray is *after* the blossoms have fallen. Paris green or London purple must be deposited on the *fruit itself;* and this can not be done while it is covered by the petals of the blossoms. If done at the proper time as above, there can be no possible injury to the bees, nor to the people who eat the honey; in fact, I do not see how there *could* be any injury at all, unless somebody is stubborn, ugly, and wicked. In that case he should be dealt with by law, if nothing else will answer. Some of the periodicals devoted to gardening and fruit-growing have been very shortsighted in this matter; one especially, indulged in some unkind reflections toward Prof. Cook, and intimated that the fruit interests were as of much importance as the honey interests; whereas the publisher of any journal devoted to fruit or vegetables should certainly understand that there is no conflicting of interests at all. A correspondent says that, in a catalogue published by Chas. A. Green, editor of the *Fruit Grower*, occur these words of instruction:

"A spray of very weak Paris green thrown over the foliage at blossoming time."

One of our bee-men, Mr. N. T. Phelps, of Kingsville, Ohio, wrote a remonstrance, to which the editor replies:

"On account of possible injury to bees, do not spray until the blossoms have begun to disappear."

Now, this is good so far as it goes; but it intimates indirectly that there is need, in the interests of a crop of fruit, to spray the *blossoms*. I think Editor Green wants shaking up a little. It seems to us that the editors of the agricultural papers should not only be thoroughly posted, but they should be vehement in setting people right on a matter that interests both parties—fruit-growers and bee-keepers. It is a serious matter to poison a neighbor's stock, but a thousand times more serious when you heedlessly go at something that may poison not only your neighbor, but the public at large. We need hardly hint that the bees are of benefit to the fruit-growers as well as to the bee-keepers. Please remember, friends, that at the joint convention of the bee-keepers and fruit-growers of the great State of Michigan, the decision was that there were no conflicting interests of any account. This

meeting was announced ahead, and fruit-growers were *urged* to come forward and present their complaints where they had suffered from bees.

WE have at this date 9704 subscribers.

SPECIAL NOTICES.

THE KUMERLE LIMA BEAN ONCE MORE.

Since our last, I have discovered two individuals besides myself, who have raised these beans. They have, however, had the same trouble in getting it to ripen that we had. This may be owing to the peculiarly cold weather last season at the time they were planted. We have succeeded in buying a very few, and can therefore offer them for 5c each, instead of 25c a bean, to those who may care to try it.

SOME MORE LITTLE BOARDS FOR SALE CHEAP.

The lot I spoke of in our editorial, p 149, Feb. 15, were all sold very quickly; but we have now about 5000 pieces, which our friends may have until they are gone, for a cent apiece. We have generally used them for making chaff-packed division-boards, but we have now too many for that purpose. They are 27 inches long, 3 wide, and $\frac{3}{16}$ thick, planed on one side—all clear pine.

CLOVER SEED—ALSIKE AND WHITE DUTCH.

Now is the time to sow it. We have a nice lot of very choice seed, both varieties. The price will be as follows: White Dutch, 1 lb., 27 cts. by mail. By freight or express with other goods, 18 cts. per lb.; $2.00 per peck; $3 90 per ½ bushel; $7.50 per bushel, bag included.

Present price of alsike, the next in value as a honey-producer, is 25 cts. per lb, postpaid. By express or freight, 15 cts. per lb.; $1.90 per peck; $3.60 per ½ bushel; $7.00 per bushel.

KIND WORDS FROM OUR CUSTOMERS.

WHAT A SINGLE INSERTION OF A SMALL ADVERTISEMENT WILL DO.

Please take out the "ad.," or all the bee-men in the U. S. will write to me. D. T. TRACY.
Longmont, Col.

KIND WORDS FOR OUR GARDEN SEEDS.

We are more than pleased with the garden seed that you send out. There is at least one-third more seed in each package than we have been in the habit of getting for the same money. Please accept thanks for promptness. W. L. COGGSHALL.
West Graton, N. Y., Mar. 24.

KIND WORD IN REGARD TO PROMPTNESS.

My seeds came to-day. I will admit you waste no time in filling orders, yours being the first of three to reach me, although I sent the order to you two days later than the others. J. H. SNIDER.
Salt Lake City, Utah, Mar. 22.

KIND WORDS FOR MARCH'S AMERICAN GROWN CAULIFLOWER SEEDS.

I thank you for promptness in shipping, and will say I have some very nice-looking plants from the seeds. The cauliflower seeds beat any I ever had before. We usually sow much thicker than cabbage, and get half as many plants; but every seed must have germinated. This is quite an item with expensive seeds. W. HICKOX.
Rockport, O., March 15, 1890.

SMITH'S PUMP FOR SPRAYING FRUIT-TREES.

The Smith pump is attracting attention here, owing to the fact that it can be used for so many different purposes; and being so cheap and simple where it gets out of order, or broken, it can be thrown aside and replaced by a new one. I have broken it to a new use by attaching ½-inch hose and improved spraying nozzle. It is well adapted to spraying-emulsions in nursery—especially citrus nurseries. With me it has proved quite effective.
Buras, La., Feb. 17. W. S. RODDICK.

THE DOVETAILED HIVE A WONDER FOR CHEAPNESS, AND ACCURACY OF WORK.

I am well pleased with your Dovetailed hive and its fixtures. It is a wonder to me how you can send out so good a hive for the money. Every thing is so true that you can put them up without any trouble. The freight charges were only 82 cts., but the duty was $2 25. I think your Dovetailed hive is just what I want, for it is for an inside hive, as I use a double hive, and winter on summer stand.
WM. GARFAT.
East Sherbrooke, Quebec, Can., Mar. 1.

LOOK HERE!

Italians and Albinos, or their Cross.

These bees are as fine as can be found in the country, and will be sold as follows:

	MAY.	JUNE.	JULY.	AUG. to NOV.
Untested, each..	$ 1.25	$1.25	$1 00	$ 75 $ 75
" ½ doz.	5 50	5.50	4 50	4.00 4.00
" 1 doz.	10.00	9 50	9.00	8.00 8.00
Tested, each	2.50	2.50	2 00	1 50 1.50
" two.... .	4 50	4.50	3 75	2 75 2 75
Select tested....	3.00	3.00	2 50	2.00 2.00

I have taken C. S. Kildow in partnership, and we will fill all orders promptly. Send for catalogue.
A. L. KILDOW & BRO.,
7 9-11-13 15-17d Sheffield, Ill.
☞In responding to this advertisement mention GLEANINGS.

Pure Italian Queens.

We will sell pure Italian queen bees, bred from pure mothers, by April 1. Tested, $1.00; untested, 50c; two frame nuclei and tested queen, $2.00, or untested, $1 50.

I. GOOD & STEWART BROS.,
Sparta, White Co., Tenn.
☞In responding to this advertisement mention GLEANINGS.

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls. and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1 17	65, 65, 64, 63, 63, 63, 62, 54, 40, 33
1 green	10	100	83	1.46	
25 green	12	100	100	1 75	44, green; price 77 cts.
1 green	14	12	14	25	
2 green	16	100	133	2 33	
1 black	17	100	142	2 47	
1 black	18	100	150	2.62	
5 green	18	100	150	2 62	
1 black	20	100	167	2 92	150 sq. ft., green; price $2 62
1 black	22	71	128	2 24	110 sq. ft., black; price $1 92
9 green	24	100	200	3.50	140, 100, 90, 40, 30, 20, 8, green.
1 black	24	100	200	3.50	
64 green	26	100	217	3 50	This is below reg. pr. of 1¾ c.
18 green	28	100	233	4.08	224, 224, 117, green; 233, black.
6 green	30	100	250	4 37	
3 black	30	100	250	4 37	
14 green	32	100	267	4 67	133, 133, green; price $2.33
1 black	32	100	267	4.67	267, black; price $4 43
1 green	34	100	283	4 91	255 black; price $4 46
14 green	36	100	300	5.25	270 green; price $4 72
1 black	36	100	300	5 25	150, black; price $2 62
8 black	38	100	317	5 54	269 black; price $4 70
3 green	38	100	317	5 54	258, black; price $4 50
3 black	40	100	333	5 83	317, black; price $5 54
1 green	40	100	333	5 83	
8 black	42	100	350	6 12	350, green; price $6.12
1 green	44	100	367	6.42	

A. I. ROOT, Medina, Ohio.

Eaton's Improved SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
2 13db **Bluffton, Ohio.**
☞In responding to this advertisement mention GLEANINGS.

BROWN LEGHORNS STILL AHEAD. EGGS, $1 00 PER 13, $1.50 PER 26. A. F. BRIGHT, Mazeppa, Minn. 7tfdb

1890 ITALIAN QUEENS IN MAY, FROM BEES BRED FOR BUSINESS. Each, $1.00. Six, $4.50. Order now, pay when queens arrive.
7d W. H. LAWS, Lavaca, Sebastian Co., Ark.
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS.

Untested, $1.00; tested, $1.50; Select, $2.00.
Breeding pure Italians is my specialty.
I will try to excel all that mix business and hire help. F. C. MORROW,
7d Wallaceburg, Ark.

The Georgia Bee & Honey Co.

Has 100 colonies of Italian bees for sale. $3.50 each, or $3.00 taking the lot. Address W. A. PROFFITT,
7-8d Hartwell, Hart Co., Ga.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of eleven years' careful breeding.

F. A. Hayes, Farragut, Pa., says:

"I have fifty colonies, and my best bees are from a queen I got of you."

L. C. Clark, Granada, Kan., says:

"They combine gentleness and good working qualities; also white capping of honey. Then, I have never got a hybrid of the 30 or 40 queens I have bought of you."

PRICES FOR 1890.

Waranted queens, in June, $1.00 each; 3 for $2.50; after June, 80c each; 3 for $2.00. Tested queens, in May, $2 00; June, $1.75. Strong 3 L. frame nucleus, with warranted queen, in May, $3 50; June, $3 00; after June, $2 50. Safe arrival and satisfaction guaranteed. No foul brood has ever been in my apiary. I am now booking orders for the coming season.

Those who have never dealt with me, I refer to A. I. Root, who has purchased of me during the past ten years, 415 queens. Address
J. P. MOORE,
7d **Morgan, Pendleton Co., Ky.**
☞Money-order office, Falmouth, Ky.
☞In responding to this advertisement mention GLEANINGS.

JAPANESE BUCKWHEAT.

1 peck, 40 cts.; ½ bu., 75 cts.: 1 bu., $1.20; 2 bu., $2.20; 5 bu., $5.40, delivered free at R. R. or express offices.

Money sent by P. O. order, reg. letter, express money order, or draft on N. Y. city at my risk, otherwise not. Reference, Wm. Smyth, P. M. of Owego, and editor of the Owego *Times*. Address 7d
G. B. TALCOTT, Owego, Tioga Co., N. Y.
☞In responding to this advertisement mention GLEANINGS.

1890 ITALIAN QUEENS. 1890

Six young queens, warranted purely mated, for $5.00. English rabbits, $1.00 per pair. Mammoth bronze turkey eggs, 25; 9 for $2 00. Send for circular. J. T. WILSON,
7tfd Little Hickman, Ky.
☞In responding to this advertisement mention GLEANINGS.

Look Here! Supplies Cheap

Italian and Albino Queens and Bees; Chaff and Simplicity and Nonpareil Hives.
Extractors, Smokers, Foundation, Surplus Section Boxes, Root's Perforated Zinc. Price List Free. Write for One.
A. A. BYARD, WEST CHESTERFIELD, CHESTER CO., N. H.

COMB FOUNDATION.

By April 15th, I shall have 200 lbs. good fresh comb foundation for sale—both brood and surplus; and while as good as the best, I will sell a little below regular prices. Five years' experience in manufacturing. For sample and price address
D. E BRUBAKER,
7d Maxwell, Story Co., Iowa.

EGGS! PURE BRED P. ROCK, LT. BRAHMA, W. & L. WYANDOTTE, and BLK. MINORCAS. $1 FOR 13; $1.75 FOR 26. 7-8-9d J. D. BRANDS, P. M., Warrington, N. J.

To Your Interest.

Before ordering elsewhere write me for price of *Strawberry Plants*. Will spare a few strong 3-frame nuclei on L. wired frames, Italian queen and all, $2.50. DAN WHITE,
7-8d New London, Huron Co., O.

Plym. Rock, Wh. and Lac. Wyandott Eggs, $1 per setting. 7-9-11d T. G. ASHMEAD, Williamson, N. Y.

SPECIAL NOTICE.

A part of our goods was destroyed by fire March 12th, necessitating a short delay in filling orders. We have added more machinery, and by running day and night expect soon to ship with our usual promptness. A. F. STAUFFER & CO.,
7d Sterling, Ill.

SEND your address on postal card for my circular of thoroughbred poultry. E. J. KENNEDY,
7-8-9d Troy, Pa.

Tested Italian Queens, $1

With nuclei, containing two or more pounds of bees on one, two, three, or four frames, at 75c per pound. Untested queens, 75c each. See March GLEANINGS. LUTHER W. GRAY,
7tfdb Orlando, Fla.
☞In responding to this advertisement mention GLEANINGS.

L. Wyandott — EGGS — W. Leghorn.
Thirteen for $1.00.
P. BROWER, New Paris, Elkhart Co., Ind.

APIARY FOR SALE

At $5.00 per colony, also R. C. B. Leghorn eggs, $1.00 per 13; prize-winning stock. Address
7 8d S. F. REED, W. Dorchester, N. H.

ALSIKE CLOVER SEED.

Retail and wholesale. Ask for price list.
7-8-9d E. S. HUDEMANN,
Ashippun, Dodge Co., Wis.

FOR SALE:—50 colonies of Italian hybrid bees in Simp. and Heddon hives. $2 to $5 per colony.
FOR SALE:—A Given foundation pres, 2 dies.
FOR SALE:—A Young American Lightning-press chase, 4½x6.
Particulars upon application. J. H. MARTIN,
7-8d Hartford, Washington Co., N. Y.

EGGS! EGGS!! EGGS!!!

READER:—If you want eggs that produce thoroughbred stock, choicest varieties, at Golden Rule prices, write now for my illustrated circulars, *free to all*. Tenth year. S. P. YODER,
7 8d E. Lewistown, Mahoning Co., O.
☞In responding to this advertisement mention GLEANINGS.

EXPERIMENT WITH ALFALFA.

I will send 2 lbs. fresh seed postpaid for 30c. This will drill a plot 80 ft. square. Larger amounts at same rate, while my seed lasts. Can sow up to June 15.
7d W. C. AIKEN, Lock Box 214, St. Helena, Cal.

Friends, if you want any **Poland-China Pigs** please write to me and you will be surprised at my low prices and good quality of stock. N. A. KNAPP, Rochester, Lorain Co., O.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to

4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

MUST SELL!

50 Colonies Italian Bees at $5.00 each, f. o. b., in 8-frame L. hives, telescope caps. Most of the combs built on fdn. in wired frames. These bees were very heavy in stores in the fall. Reasons: Can keep only about 25 colonies here in the city, and my business will not allow starting out-apiaries. Ship in April or May. **W. E. YODER,**

4tfdb LEWISBURGH, UNION CO., PA.

☞In responding to this advertisement mention GLEANINGS.

$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with Tested Queen, or 5 for $25.00.

In Simplicity or L. 10-frame hives; 250 colonies to draw from. Address

4-9db JNO. A. THORNTON, LIMA, ADAMS CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

UNTESTED ITALIAN QUEENS AT $1, and 4-frame nuclei at $3.50, after May 1st. Send in orders now.

4-10db S. J. WAKEFIELD, Autreville, S. C.

The SWARM-HIVER

Sent by mail, and the **American Apiculturist** one year, $1.50. *Circulars and sample copies free.*

Address **AMERICAN APICULTURIST,**

5tfdb **Wenham, Mass.**

☞In responding to this advertisement mention GLEANINGS.

4-FRAME NUCLEI, Tested Queen, Brood, and plenty of Bees, Italians, for $3.50. Imported queens, $4. W. A. SANDERS, Oak Bower, Hart Co., Ga.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,

16-tfdb Successors to B. J. Miller & Co., **Nappanee, Ind.**

☞In responding to this advertisement mention GLEANINGS.

FOR THE SEASON OF 1890.

Headquarters in the South.

TWELFTH ANNUAL CATALOGUE NOW READY.

A steam-factory exclusively for the manufacture of Bee-keepers' Supplies.

ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

with pure Italian queen, containing 3 pounds of bees when secured, in April and May, $4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Twelfth Annual Catalogue.

P. L. VIALLON,
Bayou Goula, Iberville Parish, La.

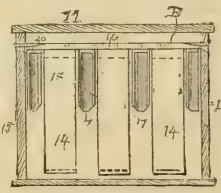
TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES,** write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,

21-20db NEW LONDON, Waupaca Co., WIS.

☞In responding to this advertisement mention GLEANINGS.



By the use of my improved spacer, an ordinary hanging frame hive is converted into a reversible or movable hive. A hive is quickly and correctly spaced, and the frames are held in their proper position, and will not be lifted when removing the cover if they are fastened to it by brace-combs. A contracted hive is made movable or invertible. In adopting this, it requires no change in a hanging-frame hive.

Price of Brood-Chamber and 8 frames.....$1.50
One Hive and 1 doz. extra spaces 4 00

In ordering state what frames you use, and give the width of your hive, inside. 6-11db

J. B. WILCOX, - - MANISTEE, MICH.

☞In responding to this advertisement mention GLEANINGS.

SEEDS. Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. F. B. MILLS, Thorn Hill, N. Y.

FOR FOLDING PAPER BOXES send to

21-8db A. O. CRAWFORD, S. Weymouth, Mass.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, $2.00; after June 1, $1.50. Untested queens, $1 00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES & CO.,

4-9db **Bryant Station, Maury Co., Tenn.**

☞In responding to this advertisement mention GLEANINGS.

THE BEST THING OUT FOR GETTING BEES OUT OF SUPERS.

The Dibbern Bee-Escape.

Get a pattern, and be sure you have it *just right.* Now perfect. Tinned wire cloth, soldered on tin. Instantly removable. Sample cone by mail, 35c. Complete board, express, 50c.

5-7 9d **C. H. DIBBERN, Milan, Ill.**

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS AND BEES.

I make this race of bees a specialty. Untested queens after June 1st, $1.00 each. Send for circular and price list to **A. L. LINDLEY,**

6tfdb **Jordan, Ind.**

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NOW DON'T FIDDLE BUT
FOUNDATION.
H. L. GRAHAM, Letts, Iowa.
WRITE FOR PRICES.

☞In responding to this advertisement mention GLEANINGS.

$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with Tested Queen, or 5 for $25.00.

In Simplicity or L. 10-frame hives; 250 colonies to draw from. Address
4-9db

JNO. A. THORNTON, LIMA, ADAMS CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

24 COLONIES ITALIAN BEES for sale in good condition, on 7 Langstroth frames, in shipping-boxes, at $3 00 per colony.
WM. AMELANG,
7-8d Ottumwa, Wapello Co., Iowa.

ITALIAN **EARLY QUEENS** AND BEES.

1 Untested queen, April $1.00. May, $1.00.
3 " " " 3 00. " 2.50.
1 Tested " " 2.00. " 2.00.

Special discounts to dealers. Safe arrival guaranteed.

W. J. ELLISON,
7-8 9d Stateburg, Sumter Co., S. C.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

A fine lot of spider, or Grayson Lily Bulbs, which I will sell. Small bulbs 25c, large ones 50c. Very beautiful and fragrant, pure white. I also have 40 or 50 stands of mostly Italian bees for sale. Will sell Queens in April. Would exchange bees for registered Jersey heifer. S. G. WOOD,
4-9db BIRMINGHAM, JEFF. CO., ALA.

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; R. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,
REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb CHAS. DADANT & SON,
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

BUSINESS.

I will be prepared by April 10th to ship untested queens bred from my fine strain of non-swarming Italians. Price $1. These bees are gentle, prolific, and fine honey-gatherers. Satisfaction and safe arrival guaranteed. If by chance a queen should prove not good I will gladly replace her when notified of the fact. R. B. WILLIAMS,
6-7-8d Box 72. Winchester, Tenn.

☞In responding to this advertisement mention GLEANINGS.

New Orleans Apiaries for 1890

Orders are now taken for early ITALIAN and CARNIOLAN guaranteed Queens. Send for price list of Best and Cheapest Apiarian Supplies offered.
Address J. W. WINDER,
6tfdb 572 Magazine St., N. O., La.

☞In responding to this advertisement mention GLEANINGS.

BEES FOR SALE

COLONIES, NUCLEI, AND QUEENS, at living rates. Send for circular and price list to
C. C. VAUGHN & CO.,
4tfdb Columbia, Tenn.

☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. NOVELTY CO.,
6tfdb Rock Falls, Illinois.

☞In responding to this advertisement mention GLEANINGS.

The SWARM-HIVER.

Sent by mail, and the **American Apiculturist** one year, $1.50. *Circulars and sample copies free.*
Address AMERICAN APICULTURIST,
5tfdb Wenham, Mass.

☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

WANTED.—To exchange job printing, garden and farm seeds, plants, eggs for hatching, and other articles, for bee-supplies or offers. Free lists.
6-8d H. A. HUBBARD, New Lisbon, Ots. Co, N. Y.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation.
1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange foundation, for beeswax. Sample on application.
5tfdb Avery's Island Apiary, Avery, La.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tfdb
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange one Green's solar wax-extractor, *new*, for an incubator or Italian queens. G. C. HUGHES,
6tfdb Pipestem, West Va.

WANTED.—To exchange thin fdn. for honey. 5d
C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange a handsome male Scotch collie for Italian bees. ROBERT WALLACE,
6d Turkey, Mon. Co, N. J.

WANTED.—To exchange cherry, currant, strawberry, blackcap and blackberry stock, for extracted honey *for* bee-food, or offers
G. H. ASHBY, Albion, N. Y.

WANTED.—To exchange Ohio Valley wire and picket fence machines for bees and bee-supplies. Circulars free. JAS. M MANGOLD & BRO., Moundsville, Marshall Co., W. Va.

WANTED.—To exchange foundation at 40 and 50 c. per lb. for any quantity of nice yellow wax at 28 cts. per lb. B. CHASE, Earlville, N. Y. 7-8d

WANTED.—To exchange a general-utility hand-cart, good as new. Write for particulars.
A. F. BRIGHT, Mazeppa, Minn. 7tfdb

WANTED.—To exchange eggs for hatching, from imported Black Minorcas, for bees and queens. Safe arrival guaranteed. Circulars free. 7tfdb
LESLIE STEWART, Jefferson, Scho. Co., N. Y.

WANTED—To exchange one set buggy harness, worth $10 00, for Langstroth or Simplicity bee-hives. JNO. GRANT, Batavia, Clermont Co., O. 8-9-10d

PLY. Rocks, White and Laced Wyandotte eggs, in exchange for foundation, sections. Japanese buckwheat, or offers. T. G. ASHMEAD.
8tfdb Williamson, Wayne Co., N. Y.

WANTED.—To exchange fruit trees, strawberry, red-raspberry plants and sewing-machines, for bees and honey. E. PETERMAN, Waldo, Wis. 8-8d

WANTED.—To exchange comb foundation for beeswax. Samples on application. 8-11db
J. P. CONNELL, Hillsboro, Texas.

WANTED.—Untested Italians for glass-front veil, postpaid. Send queens till May 1st to
8d J. C. CAPEHART, St. Albans, W. Va.

WANTED.—100 black and hybrid queens, 20 cts., for which I will exchange extracted honey at 7 cts. No cross desired, except Italian and black. If you have any to spare, correspond with
8 9d A. J. NORRIS, Cedar Falls, Ia.

WANTED.—To exchange team, harness, and wagon, for small apiary or real-estate property, in Wis. basswood belt, Northern Missouri, or Southern Iowa, as part payment; near R R. station, and suitable for apiary. Location among good society, and in good bee-pasture, wanted only. Japanese buckwheat, and books, exchanged for bees and supplies. Correspondence solicited. S. ROESE,
8d Maiden Rock, Wis.

WANTED.—Japanese buckwheat, alsike and white-clover seed, in exchange for apiarian supplies. L. J. TRIPP, Kalamazoo, Mich. 7tfdb

WANTED.—To exchange a 6 x 9 self-inking press, with type, for a Barnes foot-power circular saw, and a 2-foot telescope, for 4-inch foundation rolls, or offers. L. L. ESENHOWER, Reading, Pa.

WANTED.—To exchange printing-presses, type, etc. I want a saw-table, foundation, apiarian supplies. L. CLARK, Wiscoy, Minn.

WANTED.—To exchange one new tri-bellows, 10-keyed, 6-stop German accordion, fancy instrument, worth $10; one new Waterbury watch and chain, also a 75-photo. design canvassing outfit for marble-yard, $5.00, for circular saws, extractor, or foundation-mill, and one Cook's Manual, and a lot of magazines, for A B C books (Root's).
8d J. H. MARKLEY, Carbondale, Kan.

WANTED.—To exchange cold-frame Cabbage Plants, J. Wakefield (March's seed) and All Seasons; cold-frame Lettuce P'ts, G. Rapids and Barr's Mam. Asparagus Roots, for bees or beeswax. Write. EDW'D B. BEEBEE, Oneida, N. Y.

WANTED.—To exchange Snyder & Kittatiny Blackberry and Capt. Jack, Crescent, Old Ironclad, and other excellent sorts of strawberries, and some water-lily bulbs (Nymphæa) for Italian queens or hives, foundation, and other supplies for the apiary. J. T. HARNESS, Warrensburg, Mo.

WANTED.—Nice maple sugar. Will exchange prize Light Brahmas or eggs for hatching, or Italian bees. Stock superior. Catalogue free.
8d Box 200. CHAS. MCCLAVE, New London, O.

Black and Hybrid Queens For Sale.

Black queens, 3 for one dollar; also a few hybrids.
5tfdb H. FITZ HART, Avery P. O., Iberia Par., La.

Hybrid queens, in May, 40 cts. each; 3 for $1.00.
MILES GARDNER, Severy, Greenwood Co., Kan.

Hybrid queens for sale, all the season of 1890, at 35c, or 3 for $1.00. Safe arrival guaranteed.
E. S. VICKERY, Hartwell, Hart. Co., Ga.

Three black queens for $1.00. IRA JOHNSON,
Manor, Travis Cr, Texas.

I have 30 mismated Italian queens that I will sell for 80c each, or $1.00 for 4, or $2 90 per dozen. I guarantee safe arrival.
J. W. TAYLOR, Ozan, Hempstead Co., Ark.

HA! HA! MY BEES ARE BED-ROCK.
If you don't believe it, write for prices, and be convinced. Also, eggs from 5 different kinds of poultry. This will not appear again. 8d
J. A. KIME, Fairfield, Pa.
☞In responding to this advertisement mention GLEANINGS.

WANTED.—To exchange Japanese buckwheat, Root's price; Laced Wyandotte eggs $1 00 per 13, from selected stock; also bees, for seed potatoes; early varieties preferred; Bingham smokers, or offers. F. W. DEAN, New Milford, Pa. 7d

EGGS.
Pure Spangled Wyandottes, 13 for 75 cts. I will tell HOW TO PLATE KNIVES, for $1.00, or eggs and plating for $1 50. MRS. SAM'L JACK,
8d Richmond Center, Ashtabula Co., Ohio.
☞In responding to this advertisement mention GLEANINGS.

TESTED CARNIOLAN QUEENS, $2.50 each; untested, $1, or 6 for $5. Send for price list of Italian bees and queens, bred in my Nappanee apiary. 8tfdb I. R. GOOD, Vawter Park, Ind.

"VALLEY-FARM APIARY."
Will sell 30 colonies of Hybrid and Italian bees, in Simplicity hives. To be shipped early in May, 1890. Many of the queens were bred from Mr. Doolittle's $4.00 tested queen. Address
G. WIEDERHOLD, YONKERS, N. Y. Opp. Dunwoodie Station.
☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The supply of white one-pound comb honey is very limited. We could sell ten or twenty thousand pounds more of fancy 1-lb. comb before new crop comes in. Extracted is selling very slow. We quote fancy 1-lb. white comb, 13; choice 1-lb. white comb, 12; fall 1-lb. amber, comb, 9@10; fall 2-lb. amber, comb, 9@10; choice 2-lb. white comb, 11@12; extracted, white, 7; extracted, amber, 5@6. *Beeswax*, none in market.
Apr. 7. CLEMONS, CLOON & CO.,
Cor. Fourth and Walnut Sts., Kansas City, Mo.

MILWAUKEE.—*Honey.*—The demand for honey has been very good, and a fair trade enjoyed since last report. The supply continues fair, and we think will prove adequate to meet the demand. We can now quote white 1-lb. sections, 12@13; sometimes for exceptionally fine, 14; medium quality, 11@12; 2-lb. sections, hard to sell. Dark, 9@10; extracted, white, 7@8; extracted dark, 6@6½. *Beeswax* wanted, 23@26. A. V. BISHOP,
Apr. 8. Milwaukee, Wis.

CHICAGO.—*Honey.*—Comb honey has sold well for the past 30 days, and there is very little now on the market. Prices have been 13 cts. for white comb in nice shape; 14 cts. fancy; dark comb, 8@10 cts., and when in poor shape, not wanted. Extracted, 6@8. *Beeswax*, 27@28. R. A. BURNETT,
Apr. 8. 161 So. Water St., Chicago, Ill.

ST. LOUIS.—*Honey.*—Market very quiet. We quote choice white-clover comb, 13@13½. Inferior and dark, 9@10. Extracted and strained, in barrels, choice white, 5½. Dark, 4½@5. Same in cans, choice white, 6@8. Dark, 5@6½. Prime yellow beeswax, 25. D. G. TUTT GROCER CO.,
Apr. 9. St. Louis, Mo.

BOSTON.—*Honey.*—We quote our market at 16@17 cts. for fancy one-pound comb honey; very little in the market. Two pound, 15 cts. Extracted, 8@9 cts. No *beeswax* on hand. BLAKE & RIPLEY,
Apr. 9. 57 Chatham St., Boston, Mass.

DETROIT.—*Honey.*—Comb honey is selling slowly at 10@13 cts. Extracted, 7@8 cts. *Beeswax* scarce at 26@27 cts. M. H. HUNT,
March 24. Bell Branch, Mich.

NEW YORK.—*Honey.*—Comb honey all sold; of extracted, we have a small stock on hand; market quiet. *Beeswax* is in good demand at 25@27 cts. per lb. Stocks small. F. G. STROHMEYER & CO.,
Apr. 9. New York.

KANSAS CITY.—*Honey.*—Our honey market is good. All shipments are closed out. We quote 1-lb. comb, white, 12@13; 2-lb., white, 10@11; 1-lb., comb, dark, 8@10; 2-lb., dark, 8@9. Extracted, white, 6@6½. Dark, 5½. HAMBLIN & BEARSS,
Apr. 5. Kansas City, Mo.

ALBANY.—*Honey.*—We are almost entirely out of both comb and extracted. No change in prices. Clover, 12@14. Mixed, 10@12. Buckwheat, 8@10. Extracted, light, 8@9; dark, 6@7.
C. MCCULLOCH & CO.,
Apr. 9. 339 Broadway, Albany, N. Y.

CINCINNATI.—*Honey.*—Demand is good for choice white comb honey at 12@15 cts. per lb. in the jobbing way. Dark comb honey sells very slow. Extracted honey is in good demand at 5@8 cts. on arrival. Our stock runs short. There is a good demand for beeswax at 22@25 cts. for good to choice yellow on arrival. CHAS. F. MUTH & SON,
Apr. 9. Cincinnati, O.

FOR SALE.—Extracted honey in 60-lb. cans, at 8 cts. for clover and 7 for heartsease.
R. I. BARBER, Bloomington, Ill.

WANTED.—60-lb. can, clover or basswood or any light-colored honey. I will pay 7 cts. cash, and allow for can. D. M. WEYBRIGHT, New Paris, Ind.

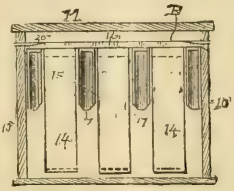
Where Do You Live?

If you will let me know I will send you our circular for 1890, which will tell you all about the **Hive we are selling for 55 cts.**; and if you want 25 we can let you have them for 49 cts. Also 100 brood-frames, $1.00. **WM. H. BRIGHT,**
8 9d **Mazeppa, Minn.**
☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES,** write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address
R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.
☞In responding to this advertisement mention GLEANINGS.

$1.50 DOUBLE-WALLED HIVE.



I make my improved spacer with the downward-extending arms nearly as long as the end-bars of the frames, and with suitable division-boards in place of the outside combs. A hive is converted into a double-walled hive with the spaces at the ends of the frames closed, which is a great aid to a weak colony in building up in the spring, if the hive is well packed on top of the frames.

Price of brood-chamber and 8 frames.....$1.50
One hive and 1 dozen extra spacers..... 4.00
Spacers, long or short arm, per 100 .....20.00

These prices are for frames ⅞ inch wide. When ordering, give the width of your hive inside.

J. B. WILCOX, - - MANISTEE, MICH.
☞Please mention GLEANINGS. 6-11db

CHENANGO VALLEY APIARY.

Please give me your orders, and try my fine yellow Italian queens; are from imported stock, well known to my customers. Send for circular

Two-frame nucleus, with queen, in June, $2. Tested queen, $1.50; untested, $1.00.
MRS. OLIVER COLE,
Sherburne, Che. Co., N.Y.
☞In responding to this advertisement mention GLEANINGS.

BEES FOR SALE CHEAP

Before May 1. Twenty colonies in first-class hives, Adair frame. Also hives and crates.
Z. & F. E. HATHAWAY, Middle Falls, Wash. Co., N.Y.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE - - BEES.

Good colonies in shipping-cases, with 9 Langstroth frames. Italians, $4.50. Hybrids, $3 50, delivered at railroad station any time after May 1.
8tfdb MISS MABEL FENN, Tallmadge, Ohio.
☞In responding to this advertisement mention GLEANINGS.

CHOICE EGGS from prize winners; 9 varieties. Send for catalogue. M. HURD, Marshall, Mich. 8-9d

BARRED PLYMOUTH ROCK EGGS, $1.00 per 13. L. C. AXTELL, Roseville, Ill. 8tfdb

SEEDS. Six pkts. of my choicest Flower Seeds, 10c. Beautiful catalog free. F. B. MILLS, Thorn Hill, N. Y.

4-FRAME NUCLEI, Tested Queen, Brood, and plenty of Bees, Italians, for $3.50. Imported queens, $4. W. A. SANDERS, Oak Bower, Hart Co., Ga.

CARNIOLAN QUEENS AND BEES.

I make this race of bees a specialty. Untested queens after June 1st, $1.00 each. Send for circular and price list to **A. L. LINDLEY,**
6tfdb **Jordan, Ind.**
☞In responding to this advertisement mention GLEANINGS.

SPECIAL CROPS.

A magazine for advanced agriculturists; 25 cts. per year; sample 7 cts. Also, Black Minorcas, B. Leghorns, and S. Wyandottes; eggs of either, per setting, 75 cts.; 26 at one time, $1.00. 4-50d

C. M. GOODSPEED, Skaneateles, N. Y.

☞In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS' SUPPLIES.

We are prepared to furnish bee-keepers with supplies promptly, and at greatly reduced rates. Estimates gladly furnished, and correspondence solicited. Our goods are unexcelled in quality and workmanship.

Italian Queens and Bees at a very low price. Send for large illustrated price list, free. Alley's Queen and Drone Trap and Swarm Hiver always on hand. **A. F. STAUFFER & CO.,**
20tfd **Sterling, Ill.**

Japanese Buckwheat, 75c Per Bush.

Alsike clover seed, $7.00 per bush. No. 1 one-piece sections, $3.00 per M. Extra nice foundation, thin, 50c per lb.; brood, 45c. Best bee-veil out, only 30c. All supplies cheap. Send for new list free.
22tfd **W. D. SOPER,**
Box 1473. Jackson, Mich.

☞In responding to this advertisement mention GLEANINGS.

COMB FOUNDATION MILLS.

Made by W. C. PELHAM,
7-8-9d **Maysville, Ky.**

BROWN LEGHORNS STILL AHEAD. EGGS, $1.00 PER 13, $1.50 PER 26. A. F. BRIGHT, Mazeppa, Minn. 7tfdb

The Georgia Bee & Honey Co.

Has 100 colonies of Italian bees for sale. $3.50 each, or $3.00 taking the lot. Address W. A. PROFFITT,
7-8d Hartwell, Hart Co., Ga.

Look Here! Supplies Cheap

Italian and Albino Queens and Bees; Chaff and Simplicity and Nonpareil Hives.
Extractors, Smokers, Foundation, Surplus Section Boxes, Root's Perforated Zinc. Price List Free Write for One.
A. A. BYARD, WEST CHESTERFIELD, CHESHIRE CO., N. H.

☞In responding to this advertisement mention GLEANINGS.

EGGS! PURE BRED P. ROCK. LT. BRAHMA, W. & L. WYANDOTTE, and BLK. MINORCAS, $1 FOR 13; $1.75 FOR 26. 7-8-9d J. D. BRANDS, P. M., Warrington, N. J.

To Your Interest.

Before ordering elsewhere write me for price of *Strawberry Plants.* Will spare a few strong 3-frame nuclei on L. wired frames, Italian queen and all, $2.50. DAN WHITE,
7-8d New London, Huron Co., O.

☞In responding to this advertisement mention GLEANINGS.

SEND your address on postal card for my circular of thoroughbred poultry. E. J. KENNEDY.
7-8-9d Troy, Pa.

L. Wyandott — EGGS — W. Leghorn.
Thirteen for $1.00. 7tfdb
P. BROWER, New Paris, Elkhart Co., Ind.

Tested Italian Queens, $1

With nuclei, containing two or more pounds of bees on one, two, three, or four frames, at 75c per pound. Untested queens, 75c each. See March GLEANINGS. LUTHER W. GRAY,
7tfdb Orlando, Fla.

EGGS FOR HATCHING! L. Brahma, P. Rock, R. C. B. **GET** Leghorn, P. Duck, $1.25 per nest; 2 nests, $2. **THE** White P. Rock, W. C. B. Polish, $1.50 per nest. **BEST** *Circular free.* S. P. YODER, East Lewistown, Ohio.

☞In responding to this advertisement mention GLEANINGS.

SEEDS. Don't buy your seeds or plants till you see my FREE 1890 catalog. I offer something wonderful. Send for it. F. B. MILLS, Thorn Hill, N. Y.

APIARY FOR SALE

At $5.00 per colony, also R. C. B. Leghorn eggs, $1.00 per 13; prize-winning stock. Address
7-8d S. F. REED, W. Dorchester, N. H.

ALSIKE CLOVER SEED.

Retail and wholesale. Ask for price list.
7-8-9d E. S. HILDEMANN,
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Vol. XVIII. **APR. 15, 1890.** **No. 8.**

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TAKING A VACATION.

VALUABLE HINTS FROM A. E. MANUM ON WINTERING; BURR-COMBS, BEE-HOUSES, ETC.

Friend Root:—Did you ever get left at a way station in a dark stormy night in a strange country, and alone? I have, and I will tell you how it happened. For a year or more I had promised our friend J. H. Larrabee a visit; and having finally set the time I started out, Feb. 14, taking the train at our station. I arrived at Larrabee's Point, a mere crossing, at 7 P. M.—30 minutes late, having been carried past by the carelessness of the conductor, to whom I introduced myself in such a manner that I venture to say he will not very soon forget Manum the bee-man. He, however, soon felt it his duty to set me back on shore—we then being half way across Lake Champlain—which was done by the use of a hand-car. Arriving at the station, nothing could be found of my friend John, he having returned after seeing the train skip past without stopping. There I was in a strange country, in a dark rainy night, with no one near me except the conductor of the hand-car, of whom I inquired whether he knew Mr. John Larrabee, the bee-man.

"Oh, yes! I know him well."

"How far is it to his home?"

"About two miles."

"Are there any people near here where I can get a team?"

"There is the nearest house away yonder, where you see the light, but they have no team."

"Can you direct me to Mr. Larrabee's?"

"Yes. Take this road north a short distance, and turn to the right; then to the left, and then to the right; and after you pass the schoolhouse, turn to the left, and it is the first house on the right."

So after thanking the good man, Manum, the bee-man, drew a long breath, and, with a heavy grip-sack in one hand and camera and tripod in the other, I started in a drenching rain, with about two inches of slippery clay mud under foot. You can better imagine how I enjoyed that walk than I can tell you. I will simply say it was glorious.

After walking, seemingly, for several miles, I saw—as I supposed—the long-looked-for schoolhouse, and I was rejoicing at the prospect of soon having the privilege of laying off my wet and now heavy overcoat; but as I neared the object it proved to be a large haystack. So with all the courage imaginable I plodded on, to again and again experience the same disappointment of mistaking a hay-stack for a schoolhouse. At last the looked-for schoolhouse was reached. So, after slipping and slewing in the mud a short distance further, I walked up to a very fine-looking farmhouse and knocked at the door, and it was opened by a very pleasant lady, in whose presence I at once felt at ease.

Mr. Root, what a vast difference there is in the reception one receives, and the feelings one experiences, on entering a stranger's house! I have entered houses where I at once felt more like retreating than advancing, while at others I have at once felt at home, and dreaded to depart; and this occasion proved to be one of the latter. Looking at me, Mrs. Larrabee exclaimed—for she proved to be John's mother—"Why, is this Mr. Manum?"

"That was my name when I left home; but I hardly know now what to call myself."

"Yes, mother, this is Mr. Manum," exclaimed young Walter, as he advanced with extended hand.

"Where is John? He went to the station to meet you," exclaimed the good father, as he also advanced to welcome me. Shortly after, John came in and explained that the train, not stopping, he concluded

I had not come, so he drove to the postoffice after his mail, and so I missed him.

After partaking of a hearty supper we retired to the parlor, where we had a very enjoyable bee-convention. I found that each member of the family was interested in John's bees, and that all read the various bee-journals, of which John is a subscriber as well as an able correspondent when he can be induced to put his thoughts on paper.

I had not been in the parlor long before I saw evident traces of Rambler's visit at this country home of the honey-bee, and I was often impressed with the thought that our friend Rambler must be a very busy and industrious rambler indeed, judging from the many photographic prints he left in that pleasant home. After discussing the new method of "raising honey on a fork," my friend John asked several questions as follows:

"Mr. M., what is your opinion in regard to the bees wintering well this mild winter?"

"Well," said I, "owing to the fact that our bees stored more or less honey-dew last fall, I think the mild winter, which has given them an opportunity to fly often, has been very favorable so far as disease is concerned. My only fear is now that they will, owing to this warm weather, commence breeding too early, so that, if we should have an unfavorable March and April, the bees will very likely suffer during the spring, owing to chilled brood which they would likely have. But should March and April be favorable they will come out strong and healthy during the spring."

"Have you seen any signs of diarrhea among yours?"

"No, not in the hives; but each time they have a fly they spot things pretty well. Hence I say the several flights they have had, I think, has saved them so far."

"Do you find that your colonies have shrunk very much in bees?"

"No, not as much as some years, owing, I think, to the fact that last fall they flew so late and worked so hard that the old bees nearly all died off before winter set in; and when I packed my bees I remarked to my men that they appeared lighter in numbers than usual; but knowing that they were all young bees, hatched in August and September, I apprehended no trouble from that source. I feared honey-dew more than any thing else."

"Do you find the entrances clogged very much?"

"No, not as much as usual. I have been to all my apiaries twice this winter, to clear the entrances; but, owing to the facts above mentioned, they were very free from dead bees."

Having now been reminded that it was past eleven o'clock we adjourned until morning, when the convention was again opened in friend John's apiary. It being a bright warm morning, a few bees were flying. We opened several hives, to find that the bees were all in splendid condition, and wintering well, with no signs of diarrhea.

"What are you going to do with this timber lying here, John?" I said.

"I am going to put up a honey-house and shop, as you see the one I have is too small."

"How large do you intend to build?" I again asked.

"I have laid my plans for a building 18x36."

"Well, my friend," said I, "you will find that will be too small in a year or two, as you say you already have the wood-shed and corn-house chambers full of bee-fixtures; and here your present building is also full; and when you come to move all of your stuff into the new building you will have it full on the start; so, what will you do in two or three years if you increase your colonies as you intend to do? Now, I have had some experience in building addition after addition, and yet I am short of room; so let me advise you to build larger than you *ever* expect to need, and even then you will soon be cramped for room. You will find that a building 24 x 42 will suit you much better in the end than the size you mention."

"I suppose, Mr. Manum, you have read the discussions relative to burr-combs, and how to prevent them. Do you think that thick top-bars will prevent brace-combs?"

"Well," I said, "it is so warm and pleasant, let us sit down here on this lumber, where we can enjoy the hum of the bees as well as the sun. In regard to brace-combs, I hardly think it necessary to adopt those thick clumsy top-bars to prevent them. First, they are too expensive to make; and, secondly, they take up too much comb space in the hive. Let us figure. A ⅞-thick top-bar is $\frac{4}{8}$ thicker than one ⅜ thick. This extra $\frac{4}{8}$ takes up the space of 2½ cells; and if the frame is 18 inches long, at 5 cells to the inch we find that we have 450 cells less in each frame, with a ⅞ top-bar, than with one ⅜. Now, if we use 10 frames to the hive, we find that this extra $\frac{4}{8}$ costs us 4500 cells to each hive; and if we get 3 hatches from these extra cells, by the time basswood blooms we have 13,500 more bees in each hive than we should have with the thick top-bars, which means quite a little swarm of bees of themselves."

"Yes, but how are you going to prevent brace-combs? that is the question. What is your practice and theory?"

"I am coming to that now," I replied. "My practice and theory are very closely related in this matter. First, I make my top-bars one inch wide by $\frac{5}{16}$ thick, and space them $1\frac{5}{16}$ from center to center. This close spacing has a tendency to prevent storing honey in the upper part of the combs, and induces brood-rearing clear up to the top-bar, so that, there not being any sealed honey below the top-bar, the bees do not seem to have any use for burr-combs immediately above or between the top-bars. Second, I find there is a vast difference in strains or families of bees about building brace-combs. I have had colonies that seemed to delight in filling up every little space below the supers, while other colonies in the same apiary would rarely ever build any. I once had a colony that would fill up the $\frac{5}{16}$ space between the top-bars and supers, and between the edges of the top-bars, as fast as I could clear them out—or, at least, I would always find this space filled every time I went to them. So I commenced experimenting with this colony by trying every method I could think of to prevent burr-combs, but without success, until I used plenty of hard soap on the top-bars and bottom of the sections. Finally this colony swarmed; and as they left a few very nice queen-cells, I thought I would save them and raise a few queens from them for an experiment, to see if this trait of brace-comb building would be transmitted to the progeny of these young queens. I succeeded in wintering six of these young queens, and, sure enough, I found that, as soon as the honey season opened, they were as bad as the old colony. Since then, when selecting queens for breeding, I am very careful about this

one particular trait of character, so that I am convinced that, with proper width of top-bars, and proper spacing and very careful breeding, we can very much lessen the building of burr-combs, without using thick top-bars."

"Mr. M., your explanation and experience are very interesting to me. Let us go in to dinner, as mother has just called."

Dinner over, my friend John harnessed one of their many horses and took me across the lake—on the ice—to the thrifty town of Ticonderoga, N. Y., and thence to old Fort Ticonderoga; and after walking over the ground that Ethan Allen and his brave men did on that memorable morning, we returned to spend another pleasant evening in the home of the Larrabees. The next day being Sunday, the time was very pleasantly spent in discussing the different religious creeds, and the various theories and beliefs in regard to the life beyond.

The next morning found us up bright and early, and at 7 A. M. Manum boarded the train to renew his acquaintance with the conductor who caused him such an unpleasant walk a few nights previous. But as the pleasant visit with the Larrabees had completely extinguished the fire within, I returned the gentleman's smile as he took me by the hand and offered an apology for his blunder, which was accepted, and we were soon on friendly terms. Thus the matter ended pleasantly between conductor and traveler. A. E. MANUM.

Bristol, Vt., Mar. 10.

I read your articles, friend M., with a great deal of interest, and I have considered you sound on almost every thing you discuss. In the present article, however (if you will excuse a junior in years and experience), on the matter of brace-combs and thick top-bars, there is one place in which you appear to me to be a little lame in your argument. In brief, you say, because there are fewer cells to the frame, with thick top-bars, therefore there are fewer bees to the hive. Now, friend Manum, you would not argue, that, because your frame—a crosswise L., or very nearly so—is only about ⅔ the size of the standard Langstroth, you would, for a like reason, secure only ⅔ of the bees that you would in a Langstroth, would you? It is not the size of the frame, nor the reduction in length and depth, that has so much to do with the number of bees, as the size of the hive. It is true, that a thick top-bar reduces the number of cells to the Langstroth frame; but, bless you, there is plenty of room in the surplus apartment, and there is where you want the extra amount of honey to go. A correspondent in the last issue made the statement that thick top-bars cause the combs to be built clear to the bottom-bar. With thin top-bars, the bees will usually leave a little space just above the bottom-bar. If our friend's statement is true, there are actually just as many cells with the thick top-bar frames as with the thin ones. You say you have a few burr-combs; but, friend M., don't you want to do away with their building altogether? According to the best authority, it takes from 5 to 8 lbs. of honey to make one of wax. A friend who sits by me, Mr. Francis Danzenbaker, says that, when he used the thin top-bars he scraped the combs off from 50 colonies. At the end of the season he found that each colony had built ½-lb. of burr-combs, which would mean the consumption of from 3 to 5 lbs. of honey. Now, can't we manage, by having thick top-bars, to have this useless energy, waste of honey, and waste of time on the part of the apiarist, concentrated in the right direction? You are correct, if the testimony thus far received is of any value, that close spacing does diminish burr-combs. ERNEST.

I think I should side with friend Manum in regard to thick top-bars. It is true, we can enlarge the hive; but even then we shall have the bees breeding, and keeping warm great heavy sticks, right in the center of the brood-nest. It seems to me it is like mixing wooden eggs with the good ones under a sitting hen, especially if the good ones are scattered all among the wooden ones. May I venture to suggest to friends Manum and Larrabee that such a way of spending the Sabbath is very commendable, providing you attended church one or more times during the day, and had open Bibles before you when you discussed the various creeds. "He that doeth the will of the Father shall know of the doctrine."

BEE-KEEPING IN CUBA.

RUNNING EXTRACTORS BY STEAM-ENGINES, ETC.

Friend Root:—Our surplus season was a very short one this year, and our crop correspondingly short, for we secured only 53,000 lbs., which we consider not more than a two-thirds crop. The reason, we have had and are still having the most protracted drouth I have ever seen in Cuba—only two small showers since October. We have had no bloom since January, to speak of. But I have unbounded faith in Cuba that the rains will come, and the bloom with them; and in proof thereof I will say we are going right on with our increasing. I shall fill every hive on the place, and have ordered more. Had we had as many again bees as we did have, through the months of December and January, we should have got nearly as much again honey.

Mr. Root, I do not pretend to understand other people's business, but I know a little something of the honey resources of Cuba, and of the management of bees to secure extracted honey. On page 175 of March 1st GLEANINGS you say, "Don't be troubled about Osburn's extractor run by a steam-engine; . . . but it will be a good while before he gets the steam 24-frame extractor to going." Well, now, friend Root, perhaps it will. I shall not try to put the engine and said extractor in this year, for I have made arrangements to pay for this property here, including 7 acres of land, bees, house, and all fixtures belonging thereto. I have just completed an addition to the house, 12 x 22, which makes our living-quarters very comfortable indeed. When I wrote you last, I said we had extracted 15,000 lbs. with the Stanley extractor. That was so; but the next day I got a man to run the extractor, and in two hours he had it so badly crippled that the baskets would not revolve; and being in a great hurry I did not take the time to examine the machine, but set it out and put the old machine in, and threw out the rest of the crop, 38,000 lbs., making 53,000 lbs. altogether. After we were done extracting I ex-

amined the Stanley; and the trouble was, the lower collar on the upright shaft had become loosened, and that threw the baskets out of plumb, and they would not revolve. So you see it was a very slight thing after all. I will say for the Stanley, it is the best-made extractor I ever saw, and I have seen a good many; and I will say it is the most rapid machine I ever saw. I shall try to get along with it for one more crop, but I have written to the manufacturer for another gearing. I want the baskets to make 5 revolutions to the crank one, while the present one makes only 1½ to the crank one. But about the engine and 30-frame machine, I don't give it up any more than you gave up the idea of putting a larger engine in your factory, when you saw that the requirements of your business made it necessary. Every man is supposed to understand his own business (or, at least, he should). It is hard for people in Ohio or any of the Northern States to understand the *great* difference in taking extracted honey here where we have the grandest honey-flow in the world for two months, or taking it where they can let the honey stay in the hives until the harvest is over. We quit extracting the 17th of February, and then extracted only twice in that month, on account of the drouth; but from Nov. 14 to Feb. 17, we extracted 14 times—that is, went over the apiary and took every thing clean. In November we extracted twice; so you see, during December and January we extracted 10 times over every hive. Well, now, do you see the necessity of having a large machine, and power to run it? Why don't you put in 40 or 50 one-horse engines to do the work of *one* in your factory? The receipts of our apiary, honey and wax, have been *very* close to $3000, and we have hired only 4 days' work at $1.50 a day—Cuban paper, which in U. S. money would be about 60 cts. a day, or $2.40 for the whole; and this I know has been a poor year and a short crop. We sold our honey for a good price in Havana, and it was sought after by all buyers, and it ever will be so as long as it is correctly managed, for it is as fine honey as the world produces anywhere.

Now, I think I should say something for the old Simplicity hive. You know we use the Simplicity—that is, in all the important features. The body of the hive is the same, only for a hive exclusively for extracting, we (that is, A. J. King and I) concluded to have the frame deeper and shorter than the regular L; but otherwise it is the Simplicity. Now, what feature I like about the hive above all others is the *cover*. A man would have to pay me a big sum of money to get me to use a flat cover. Why? Because it is too much bother, and it takes too long. It kills too many bees, and is a nuisance where rapid work is to be done. With the old Simplicity cover, if there is a quart of bees on top of the frames, slap the cover on, and very seldom a bee is mashed; then the cover is never stuck to the frames; in hot weather there is a dead-air space above the frames; and when you will find the front of a hive that has a flat cover, all covered with bees, you will find those in the Simplicity as cool as cucumbers. Why is there that difference? Simply because the bees in the flat-covered hive have every crack sealed up tight, and there is not the slightest chance for a circulation of air; while with the Simplicity cover the thing is *impossible*. They *can not* close every crack, because they can not get at them. I sit down here and look on with perfect indifference at the discussion going on about thick top-bars and brace-combs, for neither of them bothers me at all. With the extracted honey, let them brace their combs if they want to. We extract every six or seven days anyhow; and what comb honey we produce is produced in the Falcon hive, and every comb is as straight as can be; and if they build any brace-combs they are below the sections, and do no harm. The separator between the section and brood-frame prevents all that; and there being a wooden separator between every row of sections, there are no crooked combs. Every one can be cased for safe shipment. So, friend Root, if you will let me have my 30-frame extractor, and engine to run it (I have the best hives for extracted and comb honey), I shall be the happiest toad in the puddle.

QUEENS.

Perhaps there is not a place in the world where queens need changing oftener than they do here. In the first place, they lay so continuously that at two years of age not one in 20 is fit to depend upon for a strong colony. They so seldom mate with pure drones, that, unless they are as a whole reared from pure imported mothers every two years, they run right back to the blacks. Hybrid bees are what we want, but from the first generation.

A. W. OSBURN.

Punta Brava de Guataa, Cuba, Mar. 16.

Friend O., the remark you quote was made by Ernest, who meant it as a little pleasantry. The remarks that both of us made in regard to the matter were intended only as a caution to some young bee-keepers here in the States. I agree with you, that bee-keeping in Cuba is quite a different matter. I confess that I am a little surprised to hear you say you want the baskets to make five revolutions to the crank one, especially where you revolve four or more combs at once; but, as you say, you know a great deal better what the demands of your business are than we do. I am glad to have you defend my old hobby, the old Simplicity covers; but I confess I do not see why the bees do not run the combs up against the cover, if you use it without any enamel cloth or quilt over the combs. Your vivid description makes me feel a longing to visit Cuba. But somebody told me, not long ago, that it rains there almost every day in the year—sunshine one hour and rain the next. But it seems that even Cuba has its occasional drouths.

IMPROVEMENTS AND INVENTIONS FOR BEE-KEEPERS.

BOARDMAN'S NEW HIVE-CART.

As the products of the apiary become cheaper, labor-saving implements and machines become more and more important. Among the important improvements and inventions for the benefit of bee-keepers is the hive-cart, an improvement not yet much in use or appreciated.

Our artist, Mr. L. B. Gardner, of Collins, who gave us the nice picture of my apiary, illustrated in GLEANINGS a short time since, has now given us another very nice picture, showing my hive-cart as it is used in carrying in the bees in the fall to their winter quarters. In the background of the picture is also shown a glimpse of the mammoth solar wax-ex-

tractor, with the front glass removed to show the better how it is constructed.

The picture will give a much clearer idea of the construction and practical use of these improvements than volumes of words could do. A very important feature of the cart, and one I have not seen in any yet illustrated in the bee-papers, is, it combines a very excellent common-purpose cart with the hive-carrier.

By looking at the picture you will notice that, in lifting a colony of bees, it does not pick the hive square up, but first tips it forward, just as you would do in lifting it by hand, tipping it a little first to break it loose from the bottom-board. Colonies can be replaced as carefully and deftly upon the bottom-boards as by hand. If a bee comes out to reconnoiter, he seems to be a little astonished to find no one within half a rod of the hive.

You see this will prove a bonanza to timid bee-keepers. A hive can be taken from the top of another hive, or be replaced. Besides lifting and carrying colonies, all of the heavy carrying in the apiary can be done with this cart, distributing hives, surplus cases, taking off surplus sections or comb for extracting. For carrying empty or light hives, six can be hung between the bars, and six placed on top, making 12 at a load. For moving lumber from one place to another, I found it to be very convenient. The lifting frame, or bars, are 8 feet long, 2 inches square; are clipped to the axle 3 feet from the lifting end, thus giving an easy leverage over the axle, for lifting. The wheels are 2 feet 9 inches apart. It is quite important that they be large, in order to run easily and smoothly.

As this cart is made and adjusted expressly for my hives, I anticipate the most important criticism. As a general hive-carrier, it is not adapted to many of the hives in use.

If I may be excused for the bold criticism, is it not rather the fault of the hives than the cart? Are not many of the hives in use constructed with little or no regard to convenience in lifting and carrying, either by hand or by means of a carrier? Did it never occur to you that the style of a great mass of the hives now in use is a little antiquated in this respect—that this feature in the style of a modern hive has been overlooked or neglected?

I am not disposed to quarrel with others about the style of hive they use; but for me, a hive that is to be much lifted and carried must be cleated outside. But we must take things as we find them, and make the best we can of it. There are thousands who use cleated hives. To all such this cart is perfectly adapted, and with some little modification or improvement it may be adjusted to the carrying of any style of hive in use; as, for instance, spring catches on the lifting bars for the hand-holes, and by means of rods connecting with the handle. A spring-scale attachment for the hive to rest upon with a registry dial above is a part of the original plan, so that every colony is weighed as they are carried into winter quarters. This hasn't materialized yet. One day in the latter part of November, about 3 o'clock P. M., I threw open the doors of the bee-house and commenced testing the merits of the new hive-cart. I wheeled the bees myself to the door, where an assistant lifted them from the cart and placed them in position inside. The weather was growing rapidly cold, but not yet freezing. The bees were very quiet, and not disposed to be offended at any slight provocation. They were unusually heavy, and many of the hives were filled with bees snug down to the bottom-board. I was astonished at the ease and rapidity with which I could pick up and wheel the heaviest colonies, doing it easily, if I chose, with but one hand, and at the same time so softly and gently that the bees were not disturbed. I had been racking my brain for some time in trying to devise some kind of spring which would take the jar off

BOARDMAN'S HIVE-CART AND SOLAR WAX-EXTRACTOR.

the hives, but I was elated to find out that nothing of the kind was needed. I need not tell bee-keepers of any experience that it is no small matter to stoop and pick up a heavy colony of bees carefully from the ground. It is a much bigger job to thus stoop and pick up 100 colonies. You will pardon my enthusiasm, then, on learning how to dispense with all of this back-aching business.

But some one has reminded me that my bee-yard is especially adapted to the use of such a cart, being graded with much care, even and smooth. I am not unmindful that this adds very much to the pleasure of this, as it does to all other work in the apiary. But special fitting of the yard for this purpose is only a matter of convenience and comfort, and not a necessity. I had quite a number of colonies outside the prepared yard, under a row of trees, where the ground was very rough. These were at a considerable distance from the bee-house, five or six rods, may be, to the furthest. Even these I wheeled in without the slighest inconvenience. We worked very moderately, with no thought of hurrying; and when we were done I found we had been just two hours in putting 125 colonies into their winter quarters; and so much had I enjoyed the work that I was almost sorry when it was done.

HANDLING COLONIES WITHOUT BOTTOM-BOARDS TO THE HIVE.

It seems to be almost a "dark mystery" to some how bees can be handled in hives without bottom-boards, particularly in carrying them in and out of the wintering repository. I have used such a hive for many years; have carried them in and out many times, and have never experienced any difficulty in doing it, when done in the right way. There is a right way and a wrong way to do things, and I have observed that the right way is the best, always. Handling bees without bottoms to the hives depends very much upon doing it in the right way. I have been quite particular in the details of my experience in carrying in my bees, for the purpose of showing what can be done in handling colonies in the bottomless hives, to show that it is not necessary to fasten bees in their hives, and half smother them, as some do in carrying them into their winter quarters.

THE RIGHT WAY.

Every one who has handled bees much, knows very well how keenly sensitive they are to the conditions of the weather. This must not be forgotten in deciding upon the time of carrying the bees in or out. They should be carried in on a cool day, when the temperature is falling. If the colonies are very heavy, and they are clustered down on the bottom-board, raise such hives a little, and place blocks under them so the air may circulate under, and it will help them to get up where it is warmer, in a very short time. The temperature should be falling, for then the cluster within the hive is slowly contracting, and the bees are all preparing to take a nap, as it were, and are in the best condition to be carried in. When the weather is growing warm, even if it is quite cold, the cluster within is expanding, many of the bees are preparing to take a look outside, and will fly out on the slightest disturbance. Don't try to put them in at such a time.

In putting out in the spring, of course there is not quite so good a chance of choosing a favorable time to do it. But if your bees should chance to become hot and restless, don't do so foolish a thing as to get alarmed and throw open the doors of your bee-room, and attempt to put them out when it is still warmer outside. I have never known bees to receive any harm from becoming hot in the bee-room, above the loss of a few bees getting lost from their hives. It would only arouse those in the room still more, and make it difficult and unpleasant to put them out; and in the yard more or less confusion would ensue. When you have decided to put the bees out, do it if possible in the morning of a warm pleasant day, while it is yet cooler than the bee-room inside; but be sure that the bees are to have a warm time in which to take their flights. The cooler air outside quiets the bees as they are taken out, and keeps those inside from becoming restless until all can be put out; then flights will be taken in a moderate way, and no confusion ensue.

These precautions are more especially for those having many colonies. A few colonies could be handled at almost any time, without difficulty.

East Townsend, O., Mar. 11. H. R. BOARDMAN.

Friend B., we can readily pardon your enthusiasm, especially since you give us one of the best and most practical articles we have had for a long while. Such a cart would, without question, be very helpful in many other operations in handling bees, especially if the ground is smoothed up and slicked up as yours is. In my first directions for hexagonal apiaries I advised having the ground as clean, level, and smooth, as an ordinary brickyard. So many, however, remonstrated, saying that it was too much labor and expense, that I gradually gave it up somewhat. With a cart for moving the hives and supplies, however, I think it would pay well to have the ground in just that way. With a scuffle-hoe, or something similar, the labor of keeping grass and weeds down is not great. Your remarks in regard to temperature, especially choosing a time when the thermometer is falling, is very important. I have before noticed the same thing, but I never thought to put it into print. However, I have not had nearly as much experience in housing bees as you have. Perhaps had I kept on using a bee-house I might have overcome some of the obstacles as you have.

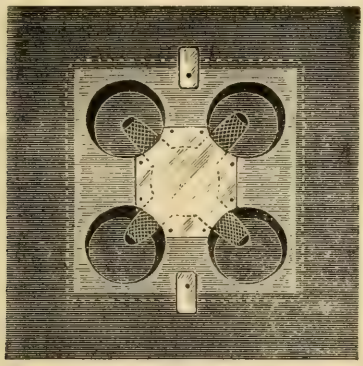
THE WRIGHT BEE-ESCAPE.

AND WHAT EUGENE SECOR THINKS OF IT.

THIS seems to be a time when bee-escapes are exercising the apicultural mind. There's no telling how many sleepless nights our brethren with inventive brains have passed in order to invent some new thing. Since the Reese escape and the Dibbern escape have appeared, doubtless many others have racked their brains to invent something in that line to immortalize themselves.

I send you by to-day's mail the product of a genius who did *not* rack his brain. He didn't have to. Geniuses never do. They do things because they can't help it. Now, if this "escape" isn't simplicity simplified, I should like to see one that is. Its inventor lives here, is one of our most enlightened and thorough-going bee-keepers, and a skillful man with tools, although he professes to be a farmer. He has rigged up a shop, by attaching a horse-pow-

er to a buzz-saw, where he turns out the neatest hives and fixtures to be found. But this is foreign to the subject. I only wanted to emphasize my assertion that he is a genius with tools. His name is W. W. Wright, of Forest City, Iowa.



WRIGHT'S BEE-ESCAPE.

You will notice that this escape is very simple, and easily made. It can be made in the honey-board itself, or in a separate block, and inserted in a square hole cut out for it. The strips of tin around the outside, and the tin buttons, are with the latter object in view. If made in the board they are not needed. His object also in making it in that form was that a sample might be sent by mail cheaply. EUGENE SECOR.

Forest City, Ia., Feb. 22.

Our friend Wright's escape will work, without doubt. Whether it would be better or cheaper than friend Dibbern's, it is hard to say; but probably not as cheap. Perhaps this season in the apiary will throw a little light on the matter. If any one desires to test them they can be procured of Mr. Wright, as above. I will explain to our readers that the device is simply a square block, ⅝ in. thick. Four holes are bored at each corner, nearly through, and one in the center clear through. A passageway is cut to each hole (see dotted lines), and through each passageway is inserted a small Reese cone. The upper surface is covered with a piece of tin. The light shading shows the removable block, which is inserted in a square hole of a hive cover, and is held in place by the tin buttons. The bees pass up through the central hole, through the cover and out.

BEE-ESCAPES AND BEE-ESCAPES.

THE VERTICAL VERSUS THE PERPENDICULAR.

SINCE the invention of my horizontal cone bee-escape, it was to be expected that many similar devices would be brought out, and claimed as original inventions. The crop is now maturing rapidly, and it can almost be said that the "woods" are literally "full of 'em." Happily this matter is not hampered by any patent rights, and the field is entirely free to all. Nor is it to be deplored that so many different devices are appearing. Bee-keepers want the very best means for doing every thing about the apiary in the best and most expeditious manner; and surely in the multitude of discussion or invention is wisdom.

Bee-escapes, as known at this time, consist of two kinds—the vertical cone, as invented by our friend Reese, of Winchester, Ky., and the horizontal cone, as invented by myself. The vertical cone, or Reese, was thoroughly tested last season; and although it generally worked fairly well, it was found objectionable on account of strong colonies clustering, and building comb in the vacant space immediately under the escape-board. Great hatfuls of bees would also hang from the cones, and in some cases actually build comb inside and around them. Mr. Reese has lately tried to overcome this by removing a section from the empty super under it, and letting the cone drop into the space thus made vacant. When it is considered, however, that it is seldom that we wish to take off a full super and place an empty one directly under it, the whole arrangement becomes bungling and impracticable. No progressive bee-keeper would long remain satisfied with such methods.

These difficulties led me to the invention of my horizontal escape. It is plain to see that the objections to the vertical-cone escapes are well nigh insurmountable; and it is noticeable that all the new escapes are on the horizontal principle. It is true, as stated by Mr. Reese on page 197, that the horizontal-cone escapes have not been as thoroughly tested as could be desired. We know positively, however, from our experience with the Reese escape and other devices, that bees readily pass through any hole big enough for them to get through when cut off from the rest of the hive by means of a board. Now, bees can pass through my horizontal four-outlet escapes as readily as through the Reese; and the chances for any getting back are very much less. There are no bees so persistent as robbing bees; and I have demonstrated conclusively that robbers can not go through the escapes when suddenly placed on a hive upside down, when it is being robbed. I believe, too, that bees are much more persistent when carrying honey out of feeders or supers than they would be to re-enter such after escaping from them. I am entirely satisfied with my escape, and know it will do all I claim. It is also quite likely, that, like the queen-excluding honey-board, other uses will yet be found for it.

THOSE DOUBLE TOP-BARS.

Oh, yes! I forgot, when writing on this subject before, that I, too, experimented with double top-bars. My main idea was to do away with the slatted honey-board, and, come to think of it, why I did not throw them aside I don't know. I made one hive with a frame having a double top-bar, just as described by friend Baldridge; also another hive with both double top and bottom bars, and a third hive with double top-bars, on the break-joint principle; that is, the openings were directly over the center of the brood-combs, and, of course, there was no opening between top-bars. I hived bees in all of these hives in 1888, and no trace of burr-comb has ever appeared in any of them. My frames are only 7 inches deep, outside measure; but I made the one with both top and bottom bars double, 8 inches. As I did not like to reduce the comb space so much, I placed some six or eight small ¼-inch pieces between the upper and lower bars, as I concluded that would answer the bees for brace-comb. The bees have wintered well in them, and, as stated before, I don't know why I did not adopt them. I thought at first that so many nooks and corners

would be objectionable, and make it more difficult to find queens. After two years' experience, however, I do not find it any objection, and I think I see in the double top and bottom bars some advantages over the thick top-bars alone.

Milan, Ill., Mar. 31. C. H. DIBBERN.

Friend D., your invention of the horizontal bee-escape—that is, providing you *are* the original inventor in that line—is certainly a very important matter, and I think they are destined to take a prominent place among our implements of bee culture. Very likely, top-bars with an opening through the center will answer every purpose in keeping away burr-combs; but are they not more machinery than the ordinary top-bar? Of course they do not need spacing. The frames are held at fixed distances, and the bee-space is exactly right; but even with these advantages, is it worth while to start a new thing and go to the expense of making a top-bar with a vertical slot through the middle?

SELF-REGULATING TEMPERATURE.

L. C. ROOT DESCRIBES A NEW INVENTION FOR RAISING PLANTS UNDER GLASS.

MY attention has recently been called to what seems to be one of the most valuable inventions of the day. Mr. Charles Barnard, an enthusiastic and prominent writer on agricultural and scientific topics, has invented and patented a system of regulating the temperature of greenhouses or other buildings when a uniform degree of heat is desired. The patents cover the construction of the house, boiler, and process of heating, appliances for ventilation, etc. The greenhouse which I saw in operation indicates a marvelous invention, some of the advantages of which I will endeavor to set forth.

The walls of the house are made in sections, and of such material as to be impervious to heat and cold. Each part is made complete, and can be set up by any person of ordinary mechanical ability. For heating, iron pipes are used, connected with an upright boiler designed especially for the purpose. The boiler and all the heating apparatus are in one corner of the house proper, so that the entire heat is utilized. Illuminating gas or kerosene may be used for fuel. If the latter, a sufficient quantity to supply the burners for a given time is placed in a tank from which they are fed. The heater is so arranged that no gas from the burning oil enters the room. A ventilator is constructed in the top, which is furnished with a device connected with the heater in such a way as to turn on the heat when the ventilator closes, and turn it off as the ventilator opens. This device will open and close the ventilator as the temperature varies. It can be gauged to hold the temperature at any desired degree.

This ventilating apparatus dispenses with the raising and lowering of movable sash, as in the ordinary greenhouse. One of the reasons for this even temperature is the fact that the fresh air is largely supplied through the ground. This uniformity of temperature being secured, no care is necessary for days at a time, save in supplying the plants with water.

So far I have considered these advantages as applying to greenhouses only. Mr. Barnard proposes to adapt the system to hot-beds, or a series of them, which will be of inestimable value to gardeners. I feel very certain that this new idea is to command the attention of bee-keepers, as it will be found of marked value to them. Every feature of the system commends itself to their thoughtful consideration. Its impervious walls, perfect system of ventilation, uniform temperature at any point, and, consequently, pure atmosphere, its form of construction, which enables it to be taken down easily and quickly, and moved from place to place, all tend to make it available for wintering bees, holding and curing both box and extracted honey, storing surplus combs, and for many other purposes connected with our pursuit. Really, I can not see why this principle, when properly applied, can not be adapted to our poultry-houses, stables, public halls, school buildings, and even to our homes.

Stamford, Conn., Apr. 2. L. C. ROOT.

Friend R., I am glad to know that our friend who loves to see things grow, Mr. Charles Barnard, has succeeded so well. Automatic regulators for furnaces, as well as ventilators, are old ideas in regard to greenhouses; but I believe that very few of them have found much favor so far. I do not know how we should use it very much in bee culture, unless it were applied to the wintering repository; but friend Doolittle and others succeed with so little variation in temperature by means of their underground caves, it seems to me there is not much more to be desired. There is another thought in regard to plants: Inasmuch as nature furnishes a certain amount of variation, I have begun to conclude that our greenhouses also should not have a temperature with too little variation. Very likely friend Barnard's arrangement may include all this.

RAMBLE NO. 23.

UPS AND DOWNS OF A PEDDLER—ESPECIALLY THE DOWNS.

ONE autumn day we were comparing notes with an aged neighbor about a weakness in our running gear. He said, that, by standing long on the feet, and lifting heavy articles, the "spine" of the legs becomes compressed and painful. We always supposed, as per Darwin and others, that the spine ended above the legs; but we always respect gray hairs, and took it for granted that this friend knew; and when he advised a long restful wagon ramble, we knew there was wisdom in his speech. We loaded our wagon with things sweet and elevating, and turned our faces toward the east, in search of light and trade, and after an ardous forenoon's work we found ourselves many miles away, with the cash for one pound of honey, our spirits lacerated with several scoldings, etc. The people, male and female, old and young, had nearly all taken an excursion epidemic, and got themselves out of the country. The few left were angry at themselves and everybody else, because they were left. One specimen of the gentler sex snappishly informed us that our baking-powder (that's what we carry along with us that is elevating) wasn't worth a pin —"tain't fit to feed pigs with."

"Why," says we, calmly and mildly, "of course it wouldn't be economy to feed it clear to pigs; but, give a little in its rations and it will have a tendency to leaven."

"Yes," said she, "I knowed it would level him; it's pizen—pizen as a cohort."

"*Cohort!*" says we.

"COHORT!" said she.

Says we to Nig, "Get up," and she went. We got into a brown study for the next half-hour, and passed several homes before we solved the problem. The dear woman had got her Scripture slightly mixed with that old but highly respected rat-poison, cobalt. We felt better, and concluded we would stop at the little brown house behind the spruce-trees. No answer to our repeated knocks; but a sound from the back yard led us in that direction, and there we found two cherubs in a barrel.

"Well, my dears, what you doing in there? Where's the folks?"

"Gone on scursion. Put us here to keep us out of mischief."

We learned afterward that this mother regularly barreled her children when she left home. They were used to it, and evidently enjoyed it.

Our journey for the day, with many more varied experiences, finally came to an end at the residence of Mr. Goodwin, on the Danby Mountains. Mr. G. is the owner of a large farm, and is also interested in the raising of sweets from three thousand sugar-maples. His annual yield is hundreds of gallons of syrup, which adds much to the revenue of the farm. In the production of honey there is not much done in that line, that we could learn; but we should judge it to be one of those good places as yet unoccupied. The mountains on each side of the valley are of such height that the honey-flow from basswood must be greatly prolonged, as vegetation is seen to put forth green leaves fully ten days earlier at the foot of the mountains than it does at the summit. Buckwheat is also sown to a considerable extent, and goldenrod is abundant.

PEDDLING HONEY WITH AN OX TEAM.

The next morning, our friend, desiring us to see his farm and sugar-orchard, attached the oxen to the family wagon, and himself, the Rambler, and two ladies, enjoyed a delightful ride. What beautiful scenery! what a docile team! what invigorating air, and what smiling faces! The Rambler forgot all about the spine of his leg being affected, and laughed with the rest. Neighbor C. must be visited; and as we approached we saw him shading his eyes; then he called his wife to help him gaze, and they mutually made up their minds that a menagerie was coming to their mountain home. With a stentorian "Whoa, haw buck!" our friend landed us safely on the doorsteps. We found here one of those splendid Vermont barns. As the slope of the side hill was several miles, there was ample room for a grand work. The entrance was at the gable end; below were capacious bays, and a double tier of cow-stables; and behind them a capacious manure-pit, which point, the Rambler is sorry to observe, many farmers are very careless about, hence the fertility of the soil is wasted around the barn. While riding behind the ox team we discussed and decided that it would be a capital rig with which to peddle maple products and honey. Of course, the peddler would have to go slow, and this would give people time to make up their minds to buy; besides, how attractive such a team would be in any of our cities! Let us not despise the bovine, is the conclusion arrived at by the

RAMBLER.

Friend R., when I first read your account of putting the children in the barrel to keep them out of mischief, I thought you were drawing on your imagination; but a near neighbor assures me that this is no fiction. He says, that in his childhood it was a common thing to "barrel" the children to save the bother of chasing after them. May the Lord be praised, a different state of affairs has come about in the matter of caring for children. Since you mention it, I think it quite likely that an ox team would be one of the tallest kinds of advertising for honey and maple syrup. These knowing chaps who talk so much about manufactured comb honey and adulterated maple syrup would very likely have faith if oxen drew the rig, and the driver were to fix up to correspond with the "cattle."

BEES THAT BUILD ILL-SHAPEN COMBS, ETC.

WHY DO THEY DO IT? AND SOME OTHER MATTERS.

HAVING a few hours of leisure lately, I looked over GLEANINGS for 1889, and in doing so I ran across an item or two which I wish to notice a little. On page 132 is a short item about comb-building, in which the writer, Mr. J. A. Golden, tells of a colony which built "nice, beautiful, thinly drawn comb" in the middle sections of a super, while the outside sections "contained some of the heaviest and most ill-shaped comb" he ever saw, and he wanted to know why this was so. In your footnotes, Mr. Editor, I notice that you think that the only solution to the mystery is, that the weather was cool when the latter combs were built, while the former were built in warmer weather, as well as their being immediately over the cluster where they would naturally receive more heat. Now, as far as my knowledge goes, bees do not attempt to work wax unless the temperature is right for the successful working of the same, and bees are capable of making a right temperature just when and where they please, as I have often proved with my self-registering thermometer. A small cluster of bees can easily keep a temperature of from 92 to 95 degrees during a cold frosty night, as many nights' experiments testify, and that is plenty warm enough for wax-working. From past experience I should account for the "mystery," as presented by Mr. Golden, in its being in the loss of the queen in that particular hive, and especially as none of his other colonies were noticed building such peculiar comb. If "cold" had been the cause of the trouble, all of the colonies would have built thick irregular combs as well; but as it was this particular colony that did so, we must look for the trouble at this point.

Several years ago I had a colony of bees that were nicely at work in the sections, having a part of them filled with comb, when, one day, in handling the frames below, I lost the queen from some unaccountable reason, and from that date till they got a laying queen they built the poorest and thickest comb which I had ever seen at that time. Many of the sections had the comb in them "stubbed" off at the sides and bottoms; some were not built more than half down when the cells were lengthened out, filled with honey, and sealed over, so that very much of the honey was unsalable. Since then, in trying to control swarming by caging the queen I have had the same state of affairs, so that I am very positive that loss of queen was the cause of the whole trouble. In fact, I very often perceive when a colony has lost its queen, by the looks of the comb which they are building in the sections, thus being able to remedy the matter, when I otherwise might not know it, or not till the colony was considerably injured. That not nearly as nice comb is built when a colony has no laying queen in the hive, is one of the reasons why I do not like the plan of taking away the queen in swarming time to prevent swarming.

GOOD QUEENS.

On page 423 I see it is thought that Doolittle is a little "off" in claiming that queens reared by what he terms "natural processes" are better than those reared by other methods, as put forth in my book. Now, I only wish to take space to say that I do not claim for the queens reared as I advise, any superiority because they are cradled in artificial cradles, or because these cradles are supplied with plenty of royal jelly into which the selected larvæ are transferred, or any thing of that kind. No, nothing of the sort. These are only conveniences to pave the way for having the queens reared just when and where we wish them, by that good and inexpensive way of having them reared in the upper stories of hives having a laying queen below. What *I do claim as superior is in the bringing of the colony into that condition* where they will rear queens leisurely, and under the same conditions that they do in superseding their own queens without the interference of man, when, as all know, the very best of queens are reared. When this can be done, and that, too, without having a queenless colony as a loss on our hands, I think that even friend Root will concede it to be of advantage to do so. If any one does not wish to use the artificial cups (which friend Alley calls "fussy"), let him use the plan as given, minus the cups, royal jelly, etc., having the cells built in the old way, or *a la* Alley's plan, as he desires, and, my word for it, better queens will be reared than have been the most of those reared in the past.

UNSEALED BROOD TO PREVENT SWARMING.

On page 604 I read as follows: "Out of some 35 or 40 swarms which we have hived during the last few days, as nearly as we can make out some 7 or 8 of this number have actually left their frames of unsealed larvæ. While a frame of brood tends very greatly to hold the swarm, it is by no means infallible." Now, after all I have said in the past on this subject, I do not know that any thing further will be tolerated from me; but I do feel so anxious that others shall not sustain a loss, as I have done, that I venture a few words more, especially as the swarming season is near at hand. I take the ground that brood is no preventive of *prime swarms* leaving their hives, but, rather, an incentive; and any person who should have 8 out of 40 swarms try to leave their hives after having brood given them, ought to so see it, it seems to me, instead of trying to bolster up that old fallacious idea. Any man who hived 40 swarms and had 8 of them leave the hive and run away, would be a great exception to the general rule, for past knowledge compels me to say that the average is not over 4 % where swarms leave an empty hive. Bees leave the hive for the express purpose of getting away from the brood, where they have the laying queen with them; and by placing brood in the hive they are put in, we bring about nearly the same conditions they swarmed out to be rid of. With after-swarms the case is different, as brood then is not objectionable, and helps build up a weak colony. G. M. DOOLITTLE.

Borodino, N. Y., Mar. 30.

Very likely, friend D., you are partly right in regard to these awkward combs. The reason why I gave my opinion, however, was, when I experimented largely with the thin loose hoop hive you may remember about, I found nice combs in the center sections of the super, but thick and awkward ones toward the outside; and right close to the hoops, where the bees could look out and see the stars through the corncrib-like openings, the combs were thick, awkward, small, and finally none at all. When the idea was first advanced of caging queens or removing them in order to increase the honey yield, you may remember that I protested strongly, saying the bees would stop work just as soon as the queen was taken away, or, at least, many colonies would do so. Well, it has transpired that they did not always stop work, for I saw them doing very good work at Dr. Miller's when the queen had been caged for a week or more, and then I concluded it made a difference whether the queen was caged in the hive or taken entirely away from it. Like yourself, I have so many times seen comb-building slacken up at once on the removal of the queen, that I am sure her presence or absence has much to do with it. It is well known that queenless colonies usually build drone comb, and I have repeatedly seen the bees change from worker to drone comb when the queen was taken away. I wish Dr. Miller and others who practice caging queens when they are getting comb honey would tell us whether they have noticed such things as I have mentioned—namely, changing from worker to drone comb after caging the queen. In regard to getting good queens, it seems quite reasonable that queen-cells built and queens reared under the influence of the swarming fever would be better than those where the queen was taken out of the hive in order to get cells. In my experiments, however, theory did not seem to be sustained by practice; but Ernest just now adds, that, in their recent experiments, they did get, he thinks, rather nicer queens reared under the swarming impulse. In regard to the last matter, unsealed brood to prevent swarming, if you emphasize *prime swarms*, as you do above, I do not know but that we can pretty nearly agree with you; but where we buy swarms brought in by farmers round about, and di-

vide up natural swarms to make nuclei, and with swarms containing virgin queens, I still say, give them a little unsealed brood to hold them; and I am now satisfied that a very little *unsealed* brood would not do enough harm to take into account, even if given to a prime swarm. A whole comb of brood in all stages has sometimes seemed to have the effect you speak of; but a comb containing eggs, with a few of the eggs just hatched into larvæ, has held bees so invariably that I would use it under all circumstances, if I could get hold of it.

THE HOT SPRINGS OF ARKANSAS.

WRITTEN BY MY YOUNGEST SISTER.

Dear Brother Amos:—To see the springs was my great wish on my arrival here; but, so far as I could learn, no one knew very much about them. The rocky steps leading up the mountain from the ladies' bath-rooms first attracted my attention. The rooms and hotel are adjoining, under one cover, and the mountain and hotel are so close that we can go out from the third floor without much climbing, and find the *hot* iron pipes crossing and recrossing each other on the mountain sides in all directions.

Herman's rheumatism would not permit his going, so I went alone. At one place I noticed the steam rising; and when I reached it I found it locked, as are the tanks, and other springs also, out of sight. I think there are *seventy-one* springs, and they all belong to the government except one. A lady from Cedar Rapids, a guest at this house, offered to go with me if I would do the "talking." So we went to the office of the superintendent of Hot Springs Reservation, and he kindly took the keys and went with us, first showing a large brick air-tight water-tank holding 30,000 gallons, and so perfect that the water that runs in over night for use the following day loses less than one degree in temperature, which is 140 degrees Fahrenheit. Most of the springs are covered with stone, and cemented. The water is conveyed from them through iron pipes to the government tanks and bathing-houses below, and now we are where I saw steam rising. The door is unlocked, and I can go in and inhale the vapor, and see and feel the hot water coming, right out from the rocks—beautiful rocks they are too.

I asked the superintendent if he was not troubled with visitors; but he said I would be surprised to know how little the people seemed to care to see the springs. It reminds me of that scripture verse, "A prophet is not without honor, save in his own country." But I hope there are more here to appreciate these great, wonderful hot-water springs than I imagine; but I am told many have lived here for *years* who never went to see the springs.

We have just been to another spring, about one block from the house, and the water heated my cup until I could not have held it had it not been for the handle, and I could not bear my hand in the water a moment, as it would burn. This spring is on the main street, and is free to the city.

TUESDAY, 25TH.

Four ladies and myself have just been around and over Hot Springs Mountain (a spur of the Ozark Mountains), starting out south around by the United States Army and Navy Hospital, and coming in from the north through "Happy Hollow Springs," a beautiful creek running along down the mountain path for about half a mile. I found a spring myself, and was clearing it out; but the ladies said I was going crazy over it, and so I had to leave it. I put my arm away back in it. There was no heat at all about that one. I should think geologists would find plenty to interest them here. I found two chameleons (at least, so I should call them)—one drab, the color of the tree-bark, and the other green, from the moss it was on. I wish I could have *you* to walk and climb mountains with me.

ARTIFICIAL ICE.

March 28.—We are just back from a long pleasant walk out to the Arctic Ice-works. The proprietor went around with us, and explained the process and showed us the cakes partly frozen, and let us see them when being taken out. I never saw natural ice that would equal the artificial in clearness. A piece weighing 150 lbs. would require about 36 hours to make. He showed us different grades; but what *he* called a fifth grade seemed to me much nicer than a great deal of the best at home that goes into our refrigerator.

From your little sister, M. E. HOLMES.

Hot Springs, Ark., Mar. 24.

I suppose that, as a matter of course, sister Mattie, if the people round about the springs don't care to visit them, no one has thought of using this hot water for heating greenhouses, cold-frames, etc. With nature's supply, and no necessity for cold-frames or even natural gas, not only could all the fruits and vegetation of the tropics be raised with very slight expense, but we could be independent of many of the vicissitudes of weather that are such a trouble to us in cold climates. The fact that that great tank preserved the temperature within only one degree of heat suggested to me at once what a grand opening there was for a greenhouse. I suppose, of course, there is a great deal of hot water that goes off, doing nobody any particular good. Your description of the apparatus for making ice, comes in very opportunely after our exceedingly mild winter.

OUT-APIARIES IN AUSTRIA.

A NOVEL METHOD OF CARRYING BEES UP THE ALPS, TO FIND LATER PASTURAGE.

Friend Root:—I send you with this the Jan. issue of the *Leipziger Bienen Zeitung.* You will notice the engraving illustrating the manner in which bees are carried further up into the Alps in Carinthia. I was much struck by the lifelike picture, and thought possibly you would think it worthy a place in GLEANINGS. What do you think of the lady in the foreground? Doesn't she seem to bear her burden with mother-like patience? Here is a translation:

The Carinthian bee-keepers, to secure the highly prized honey of the Alps, carry, in mid-summer, with much labor, their stocks of bees to the highest Alpine meadows. The cases are carried upon the back, in what are called "knaxen," and more than three of them are sometimes piled on; and when we consider the weight of the cases, and the very difficult road, the burden seems possible for only the strongest men. One occasionally sees the en-

BEE-KEEPERS OF AUSTRIA CARRYING BEES UP INTO THE MOUNTAINS.—*From the Leipziger Bienen Zeitung.*

tire bee-keeping guild of the Carinthian high-mountain villages, laboriously threading their way along the narrow paths, climbing upward, as shown in the cut. What bee-keeper's heart is not stirred with enthusiasm in looking at the picture, and seeing the Carinthians climbing up the cloudy mountains?

The editor says that only the strongest man can carry three colonies; but it seems as if the lady had the largest load, does it not?

Belleville, Ill., Mar. 5. L. F. DINTELMANN.

We might add here, that Carinthia is in the southwestern part of Austria, bounding Italy on the northeast. It lies immediately north of Carniola, where the bees known as the "Carniolans" are reared.

Yes, friend D., we do think the picture worthy of a place in GLEANINGS. Please accept our thanks for forwarding it. The picture reminds me vividly of my climbing mountains in California; and if our people there have never used an apparatus like the above for lugging hives I trust they will take the hint. I should be very glad to know whether the picture was made from a photograph of an actual scene, or whether the artist supplied something from his imagination. In the picture we see three women and three men. The woman in the foreground has the largest load of any. Is that the way they treat women-folks in Austria? If so, I wish to make a loud protest. Very likely they enjoy the work, and prefer to do it rather than to wash dishes and keep house. If so, well and good. But why do all the women-folks have arrangements for an *extra* package over the head? Supporting the burden directly over the head and shoulders so as to bring the center of the weight between the feet is no doubt an ingenious idea; and in carrying burdens up mountains I should think it would be valuable. In California I saw one apiary on a level height where it was impossible to get a horse or vehicle of any kind; and it occurred to me that it must have been a tremendous task to get all the hives up there. By the way, haven't our Austrian friends been trespassing on Heddon's shallow brood-frames? Those packages look almost exactly like half-depth eight-frame hives. In order that the package may be light, and at the same time restrain the bees, each section seems to be wrapped in paper and tied with twine, something on the style of friend Danzenbaker's package that he took down to Florida. By the way, will somebody tell us whether it is the mountain air and outdoor exercise that makes those women look so plump and healthy. If so, I think I should like to go and help. There is one thing, however, that might trouble me: If the women-folks carried three packages, and I should carry only two, I should feel ashamed of myself; and I am afraid that, if I were to undertake to carry three, and fail, I should be ashamed of myself still more. I wonder if they do not sit down and rest occasionally, and talk over matters; and are there springs in those rocky recesses? Is it possible that GLEANINGS has a subscriber in the neighborhood of these mountain apiaries? My curiosity is greatly excited; and, oh how I should enjoy visiting these brothers and sisters away off there, near the native home of the Italians and Carniolans!

COMMENTS ON GLEANINGS.

TERRY'S PICTURE OF HOME; THE SERVANT GIRLS; JOTHAM'S BEES, BY JOTHAM'S WIFE.

I AM not an enthusiastic bee-keeper, but Jotham would like to be. I should much rather write for the papers at the price paid for Whittier's last poem. Some medium of exchange is what this house needs; and if I could see $100 a year, clear gain, aside from all expenses of time and money and neglect of other business, perhaps I might become an enthusiast on the subject. I occasionally read GLEANINGS, and I feel pretty well acquainted with such friends of humanity as A. I. Root, T. B. Terry, Dr. Miller, Anna B. Quillin, and the late Mrs. Chaddock. As "Rose Park," in the *Farm Journal*, she was generally equal to the emergency; let it be the thrashers' "unexpected company," "milking the skittish heifer," or whatever it was, she never seemed to be so badly caught but that she could find some way out.

Your splendid picture of the Brantford Convention makes me wish to live in Medina instead of here, because there is one man in that place who advocates woman suffrage—no, advocates taking his wife to conventions, even if she happens to think she can't leave home.

I like Mr. Terry's picture of home. It is not every one who has three rooms in the house to open for every-day use, but we can use what we have, and not keep one shut up the year round, never allowing the sun to enter for fear it will fade the carpet, till every thing in the room has a musty smell. If his children "go to the bad" it will not be for lack of pleasant home surroundings.

All honor and praise to those lady teachers at the convention, who remembered the law of kindness, and returned smiles and thanks for the thoughtful consideration of the table-girl at the Lansing hotel. Is it so much the position one occupies in life, as the manner in which that one discharges the duties of that position? If by force of circumstances an estimable young lady is *table-waiter* at hotels, I see no reason why she is not entitled to the same courteous treatment as if she were a clerk in a government department at Washington. Away with this caste spirit!

Man's inhumanity to man
Makes countless thousands mourn,

and how much of the needless suffering comes from selfishness on the part of those who could just as well scatter seeds of kindness as thorns along the byways of life! Fiction gives us some vivid pictures of the instinctive selfishness of man, but real life furnishes them every day.

Jotham has been in the bee-business seven years, and a subscriber to GLEANINGS four, and he threatens to send you a report of his success or failure, I don't know which he calls it. He has wintered (no, they are not wintered yet) 15 colonies in some new-fangled contrivance which he calls double-walled chaff hives, and thinks he is doing things scientifically. I don't pretend to know an Italian bee from a Cyprian, or a black bee from a hybrid; but if he doesn't put his threat into execution (and I don't believe he ever will) I will report next autumn, if this literary effusion escapes the waste-basket.

JOTHAM'S WIFE.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

ALFALFA AND BEES IN IDAHO.

We were told that bees could not live through the winter here; that a number of people had tried, but always lost them. We got about 300 lbs. of honey in 1-lb. sections, as nice honey as I have ever seen. Near the water-courses there is an abundance of willows. On the mountains there are flowers. Then we have lucern (alfalfa) all over the country (in the fields), alsike, and other clovers; also a plant that is called here stinkweed, that is rich for bees. We should be glad to know its botanical name. Sweet clover is getting a start here, but many of the farmers don't like to see it. They consider it a pest. A. J. FLACK.

Franklin, Idaho, Feb. 17.

Friend F., I do not see why bees should not winter with you. If the winters are very severe, all you need is good cellars; and these are a necessity in Wisconsin, Minnesota, and other cold regions.

GIVING BEES A SUN-BATH INDOORS.

One week ago I prepared a device which I called the winter sun-bath, to test its results with a single colony. By the use of hinges I widened the alighting board to one foot, of a Langstroth. Then I made a gauze awning, with triangular sides of drilling. Then when the day was warm I placed the hive in front of a south window, and let the sun shine upon them. In a few minutes the bees came out freely, and I fed them some honey candy which I made that was not sticky, of which they ate freely. Soon they commenced to void, and littered the whole front very much. At first there was great eagerness to get out and fly away, so I opened the window and let two go. In about a quarter of an hour one returned and alighted upon the awning; I took it with my handkerchief, drew up the elastic, and placed it beneath the awning, when it immediately entered the hive. In the course of two hours the bees commenced the work of clearing the hive of dead bees, but did not work with avidity. As it grew cooler I darkened the window, and the bees found their way into the hive, when I cleaned the alighting-board, and decided to give them another playspell the next day. I am in doubt whether it is a good thing for the bees, unless it is near spring time, as the action of the workers might hasten the development of the queen for laying, and, there not being the proper food to be had for brood production, it is possible that it might result disastrously. However, I find the awning a splendid thing in the dark, at a time when the weather is so warm as to set the bees in commotion, for many will come out of the hive and not be able to get back; but by preventing their leaving, none die by getting outside of the hive, as they all can find their way back again. F. D. LACY.

Nirvana, Mich., Mar. 7.

Friend L., the above arrangement is substantially the same as we used years ago, when we were troubled with spring dwindling and dysentery. A little tent of cheesecloth was put over the top of the hive; then newspapers were laid over the frames, so as to prevent soiling the top-bars. After the bees had flown inside of the tent, and emptied themselves, and gone back on to the combs, the tent and papers were removed. Very likely some colonies were saved that would not otherwise have lived through until spring. Such treatment may, without doubt, answer nearly as well as a flight in the open air; but ordinarily I think that bees may remain for months in the hive without detriment; and even taking them out of the cellar to give them a flight, in pleasant weather in the middle of the winter, I believe is now mostly abandoned. Some of our veterans have decided that, even if some colonies are saved by such means, in the end it costs more than it comes to. Fix them up in the fall, so that they will not need any tinkering or care until they can be set outdoors in the month of April.

FRAME-SPACING; CARNIOLANS.

I have experimented a good deal with spacing frames. My eight-frame hives are all 12 inches wide, inside measure, giving 1½ inches to each comb from center to center. If bees build brace-combs between the combs you may rest assured that the combs are too near together. Then I have noticed that bees are more liable to swarm when the frames are hung too close to each other. Especially is this true of the Carniolans. I have reason to believe that larger bees are raised if the combs are placed further apart. My experience with Carniolans is, that they are not as gentle nor as handsome as the Italians; and my advice to all would be, "Stick to the golden Italians till we get something better." W. P. TAYLOR.

St. Bernice, Ind., Mar. 10.

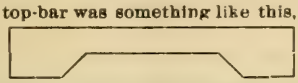
SWEET CLOVER AS A FORAGE AND HONEY PLANT; VALUABLE TESTIMONY FROM J. H. SNYDER.

IN GLEANINGS for Mar. 1 you ask for facts in regard to sweet clover for hay. I lived for three years on my father-in-law's farm at American Fork City, Utah. While there I cut and put up for hay several tons each year, the whole crop of hay on the farm amounting to about 300 tons. We had red-top, timothy, and all kinds of wild hay. You could turn the horses into the stack yard, and they would pick out the sweet clover in preference to all the rest; and the cows seemed to like it about as well as any. My brother-in-law has been feeding it to horses and cattle all winter—not range stock, but livery-stable horses that have been used to the best of feed, and he says they like the sweet clover as well as they do the lucern (we call it lucern here, not alfalfa). In putting it up for hay, according to my experience I would not cut it until well in bloom, because it is so rank and hard to cure if cut too young. Let it get full grown or in full bloom, and rake it soon after cutting. As for pasture, I consider it very good for a mixture. There are hundreds of acres of it around me. It seems to thrive best along the banks of streams where there is an occasional overflow for a short time. My Jersey cow lived on sweet clover principally, from May till frost killed it, which was pretty late this season; in fact, it was the last thing the bees worked on last fall. As for honey, well, ask Bro. Root. He sampled it while here.

DON'T LIKE THE FIXED DISTANCES.

Almost the first hives I bought had top-bars at fixed distances. They were 1¼ inches wide, with a slot cut out of one side, something similar to a sec-

tion box, only the slot was made about $\frac{5}{16}$ deep, so that the top-bar was something like this, and ½ in.



thick. I notice we have fewer brace-combs on these bars than any I have used; but I don't like the fixed distances. J. H. SNIDER.

Salt Lake City, Utah, Mar. 12.

I am well aware, friend S., that you have excellent hay from sweet clover in the vicinity of Salt Lake City; but is not the clover somewhat different there, on account of the alkaline nature of the soil, from what it is with us? We are very glad indeed to get your testimony; and I will try this year to cut some sweet clover while in blossom. My experiments heretofore have been with the plant long before blossoming. I do not believe, however, that sweet clover can be made to flourish here as it does with you.—I am inclined to think that 99 bee-keepers out of every 100 will say as you do, that they do not like *fixed distances* for frames.

DYSENTERY AND SOURED HONEY IN BOX HIVES.

I received your A B C some time ago, and have perused it well. I wonder, after reading it, how any man who has but a few colonies can get along without it. I was reading this morning on "Diseases of Bees." I have lost some from bee-dysentery. I have the old-fashioned box hives. I took the honey out after the bees were all dead, and I found, by examination, that half the combs were not capped over, and the cold weather had frozen ice over the combs. The steam caused by the bees' breath occasioned this. A warm spell set in and melted the ice, and it ran into those uncapped cells and soured the honey and gave the bees the dysentery. This is my opinion.

I am glad you have lived down all the saloons near you. May God speed the day when there will not be left in this fair land of ours one rum-shop to sell this liquid damnation.

Very affectionately your co-worker in Christ,

Asbury, Pa., Mar. 8. ELI ROBBINS.

I think your deductions are correct, friend R., and we had much the same state of affairs when we used to be troubled with dysentery. For some reason, however, we have seen very little of it of late years.

CUSTOMERS, AND 7-TO-THE-FOOT SECTIONS.

It has for some time been a question in my mind as to what is the best width of section to use. I believe we have straighter combs built when we use those 7 to the foot, open all around; but the trouble is, the customers seem to be under the impression that, when they buy a section of honey, they are to have a pound; and they are so often called a pound section, that, while we may not say there is a full weight, I fear some may think they are being deceived. I should like to hear what sized section our leading bee-keepers think is best to use.

ALFALFA, AND NECESSARY CONDITIONS FOR GROWTH AND HONEY.

I should like to have any one who is contemplating sowing alfalfa for bee-pasture consider the fact that it is necessary to have very hot sunny weather to bring out the honey. I know of but one small patch; and the man who has this says the bees do not work on it much. Although I have not tried it, I believe alsike is much better in this latitude, as the bees work on it a great deal. Much of the time my field seems to be just alive with bees.

Linn, Kan., Feb. 20. J. T. VAN PETTEN.

Friend V., I do not think that anybody can consistently complain because sections do not weigh a full pound, when they are sold by the pound and not by the piece. This matter has been pretty thoroughly discussed at conventions, and the general verdict seemed to be that the great world at large is better pleased with less than a pound than with more. For instance: A customer asks the price of honey. You tell him 18 cts. per lb. Now, if the one-pound section handed out to him costs *less* than 18 cts. he will not stop to ask questions, nor will he complain. If you tell him honey is 18 cents per pound, and he takes a pound section and is charged 20 cents, it requires a good deal more talk to make him feel satisfied than the other way.

RACES OF BEES; HOW FAR APART TO KEEP PURE.

How far apart must the different races of bees be kept to be sure of the queens mating purely? One bee-keeper and queen-raiser with whom I have had some dealing, says they will not mix if 80 rods apart, which I think is a grave mistake, if one is in the queen-business. G. S. WHEELER.

New Ipswich, N. H., Feb. 21.

Friend W., the talk about "rods" in the matter mentioned is an absurdity. To prevent bees from mixing they must be separated nearly twice the bees' flight—that is, if you want to be absolutely certain about it, and that would mean not less than five or six miles. Most queen-breeders, however, manage in a much cheaper way than moving the bees to such a locality. If there are black drones within half a mile of you, raise so many Italian drones that you have a hundred to one of the black ones, and you will not have much trouble with hybrids.

SPREADING BROOD IN THE SPRING A SUCCESS.

On page 93, Feb. 1, Mrs. L. Harrison takes Mr. Doolittle to task for his advice to spread the brood in the spring for the purpose of producing strong stocks, and Mrs. H. tells us that it proved to be a total loss, and she therein owns up that she did not strictly adhere to the Doolittle method. Now, right here I wish to go on record as saying that there is no let-alone method or any other method in practical use at the present day, or ever has been, that will produce the working force or strength of colony that the Doolittle contracting and gradual expanding method does. I have tried it faithfully since 1878, making 12 seasons, and not with a few picked colonies, but I have used dozens, and in the same yards with the let-alone method, and the Doolittle method is sure and wins every time. The time that I begin spreading brood varies from the 13th to the 20th of March, and there are dozens of persons who can vouch for the reason why I often have bees working in the sections on Decoration day, May 30, building comb. I defy any man to obtain the same strength of colony by any other method; and it pays, too, because I have two good strong colonies to run full blast on the basswood and sumac. Doolittle has very often cautioned against spreading the brood too fast. I advise all to start early, contract close, and let the first lot of brood replace the old wintered bees, because, if you count on the use of the old bees for

more than their equivalent number of young ones, you will be disappointed.

AUTOMATIC SWARMING.

The article on page 133, Feb. 15, the principle of it has been used for years, and was in practice before Doolittle or I kept bees, perhaps before we were born. The Ohio Combination hive, built away back in the fifties, was just that thing exactly, and Mr. Phelps, in his book, published prior to 1865, and sold with the Combination hive, calls this method of placing hives side by side, the "Subtended" system. There were no less than five different makers of hives of the Subtended system, prior to 1867, that I know of, and have seen and used. Phelps also describes two other systems, the super and the Nadair systems, and some of these hives are still in existence, one of which I know of, that is 47 years old, and is now in use. Its super parts are less than 6 inches deep and 4 in number; so you see, Mr. Doolittle, that your questioner is only waking up the sleeping past. From what I have seen of the Subtended system for the past 30 years, there is no reason why it can not be made practical; but I do say, that tests have given evidence that it is not profitable; and to the readers of GLEANINGS I wish to say that the Subtended system has been used here in Connecticut to the obliteration of whole apiaries; so, go slow and don't fuss with very much. I have tried it to my sorrow. Furthermore, H. D. Davis & Co., Brantford, Vt., are out with a circular of a patent hive, to stand the brood-chamber on end for wintering. That has been in practice away back into the seventies. His sections are held in cases long in use, and the most if not all of his combinations are now in many apiaries, giving another phase of original (?) inventions miles apart, for some one to fight over and pay lawyers' fees.

H L JEFFREY.

New Milford, Ct., March 3, 1890.

PUTTING BEES IN AND TAKING THEM OUT OF CLAMPS; HOW TO DO IT.

Would you please let me know how a person can manage his bees in the fall, also in the spring, when putting them in and taking them out of clamps, so that the bees will not get lost on account of the hive being moved? I find if I clamp mine early in the fall, and leave them in the clamp until late in the spring as I should, so as to escape spring dwindling, then move them, many of the bees get lost.

Post Perry, Ont., Can., Feb. 16. C. J. PEARSE.

We infer from the above that friend P. has in mind a clamp made by moving the hives close together, and permitting the bees to fly while in the clamp. In that case there is no remedy that I know of, and his trouble is the principal objection to clamps made in that way. The bees will be confused when you move them up close together, and again when you set them apart in the spring. There are some who have practiced this plan, notwithstanding, but I believe the arrangement is mostly abandoned.

HONEY FOR DYSPEPTICS.

As friend Dadant stated in GLEANINGS, Feb. 15, page 130, that honey is hard on dyspeptics, I thought I might give some of my experience in regard to honey as food for persons affected with indigestion. I had been bothered with indigestion for ten years before I had any thing to do with bees or honey, scarcely ever tasting honey; and when I first began in the bee-business, honey would sometimes hurt my stomach, but not seriously, and I kept right on eating it, and have been eating it for twenty years. I have eaten more this winter than usual, and my digestion is better than it was twenty-five years ago. I have eaten extracted honey almost altogether, though, so I think honey agrees with me better than sugar we get at the stores. Friend Root, have you tried heating the honey to the boiling-point before eating? If not, try that, though there are people who can't stand honey in any form. But that does not prove it unfit for dyspeptics in general. That is for each to decide for himself, and not take anybody's word for it. Sometimes it is the comb that gives or causes pain, and such can eat extracted honey; and if that gives trouble, heat it; and if they are still troubled, I don't know what to recommend unless it is to stop eating it.

Bedford, Iowa, Feb. 26. J. S. WILLARD.

GETTING BEE-SUPPLIES MADE AT LOCAL PLANING-MILLS, AND THE RESULT.

I received my goods a few days ago, that you shipped Feb. 17. They were delayed on the road nearly two weeks, but I generally get them in three or four days. On opening them I found them well packed, and every piece ordered, and every thing of first-class work. I am a man of small means, and I go just as far as I think my money will permit. It does me good to pay for goods that are first class; but I should hate to pay for inferior or unserviceable goods. Now, just this one time I tried a carpenter here, who has a regular shop (horse-power) with, as he says, all necessary machinery. So I figured and found out I could save a couple of dollars by having him cut me out the bodies of twenty hives, tops and bottoms, and the two dollars saved would pay for what I had to order from you. Well, I have the goods from him, and the goods from you; and I tell you, if the good Lord will forgive me this time I shall order all I need after this from A. I. Root, for I had an awful time putting the home-made bodies together; and as to your chaff hive I sent for, I gave it to my wife, as it was the only one I have; but they are so neat and grand I expect to adopt them as fast as I can. I assure you it does me good to see a man in so large a business so full of God's work; and I only wish I had as much of his work in my heart and soul. Please print this letter so the world can see what your customers in Central Illinois think of A. I. Root. R. S. JOSEPH.

Litchfield, Ill., Mar. 5.

Friend J., I am exceedingly glad that you have found every thing all right so far from A. I. Root; but I want you to scrape up patience for the time in the future when it will *not* be all right. And I wish you to have a little more charity for your planing-mill man. With a little showing and a little more pains he will probably make your hives just as well as we can. You ought to be with him and stand by him when he makes the first lot; also have on hand some samples of our own work to compare with his.

WHAT SHALL A CHRISTIAN DO IN REGARD TO BUYING AND SELLING ON SUNDAY?

I have been trying to find in GLEANINGS, from the experience of others, what occupation to combine with bee-keeping. Since reading your conver-

sation with Gov. Hoard, at Madison, I think I have found it. I live near enough to town to sell nearly all the milk I can get from eight or ten cows; but there is one point about it I want to ask your advice on; that is, if I sell my milk my customers in town who can not keep a cow will want their milk just the same on Sunday as they do on any other day, and the cows have to be fed and milked just the same. Some of the mothers have babies that need fresh milk twice a day. Will it be breaking the Sabbath, or violating God's law to deliver milk on that day? The laws of our State permit it as necessary labor. A. R. JONES.

Lebanon, Mo., Feb. 17.

Friend J., you have struck on one of the hard problems. I know of some who sell milk who do not take it around on Sunday; and there are many Christian people who refuse to buy milk on the Sabbath day. Now, if you could find enough such customers for all your milk, that is what I would advise. Where there are babies that need fresh milk during the hot weather, if it were myself I should prefer to carry it to them without charge. If you make the matter a subject of prayer, and try to be guided by the Holy Spirit, I am sure it will prompt you right. I am very glad, dear brother, to have you come to me with such a question, not because I feel that I am able to answer it the best way, but because it indicates a desire to serve God and your fellow-men in the best way.

CARE IN QUOTING SCRIPTURE; REMEMBERING THE SABBATH, ETC.

Dear Bro. Root:—Referring to Our Homes text in last issue, I notice you make, and argue from, a misquotation (a quite common error). The word "weary" does not occur in the passage chosen. You quote it properly toward the last, but that does not atone for the prominent position given the error. I subscribed recently for GLEANINGS, purely for these talks, ten years having elapsed since I took it as a matter of business; and I must say I was painfully surprised, that, after your being in a *focus* of light, as it were, so many years, you could, with so little disturbance of conscience, resort to the street-cars in Chicago upon a recent Sabbath. It seems to me that no one can carefully read God's word through, noting the multitudinous expressions of our Father's will with relation to his day, and the fact that, among the commandments, more words are given to the fourth than any other, without concluding that upon this day the *earning capacity* of the world, so far as it relates to temporal matters, is to *cease* and for *one* day live by faith; and to please our Father, we are to deny ourselves for the sake of the day he holds so dear. If street and railroad cars *should* not run, it seems that Christians can only treat them as if they *did* not. But I have no time to go further, although, of course, much might be said. You are sincere, your purposes are good, and God is using you, as I believe, for the enlightenment and comfort of many; but I felt like saying what I have. R. B. KINSEY.

Reading, Pa., Feb. 18.

Dear brother, I thank you for your kind way of pointing out our carelessness, and we will try hard to quote Scripture correctly hereafter. But still we trust we did not vio ate the plain teaching of the Bible; for in Jeremiah 31:25 we read that God says, in speaking of the blessings that should come through Christ, "I have satisfied the weary soul, and I have replenished every sorrowful soul."—In regard to the Sabbath day, I thank you for the suggestion you make; and I believe I fully agree with you. My conscience troubled me every minute of that ride on the street-car, and I don't believe I shall use street-cars again. The ride, however, gave me a new light on the subject. I supposed street-cars were used, at least largely, by those attending church. I found, however, that the conductor could not tell me where Plymouth Church was, nor could any of his numerous passengers; and when the car passed near by the entrance of the church, not one on that loaded car got off except myself. I do not wish to dictate a line of conduct for others; but the next time, I think I shall look up a church near by, before Sunday comes, and avoid, as you suggest, *traffic* of all kinds on the Sabbath.

BEES WINTERING OVER, HANGING ON A BUSH.

A friend of mine has found quite a curiosity in the shape of a swarm of bees hanging on a bush, where they have built combs two feet or more long, and have wintered out in the open air, and are at work getting honey and pollen now. They are in an old field near the Mississippi River, which is on a rampage now. They were pulling a skiff through the old field in the overflow when they found the bees. The bees are about 4 feet from the water, and are in danger of being overflowed. The same man found a swarm last fall, hanging under a log in a drift-sack in the Missouri, and he got 20 or 30 lbs. of nice honey. The winter has been very mild. Our fruit-trees are in full leaf, and a great many forest-trees are in full bloom.

By the way, here in the bottoms, where the acorns and seed drift together, there are millions of little trees, from a foot high up—oak, pecan, ash, sycamore, and various others. Now, could these trees not be used to great advantage by our friends in the treeless portions of the United States? If they could be used, the supply is unlimited, and I should be glad to take them up and send them to parties wishing to plant trees. If you think they would sell, let me know and I will put an advertisement in GLEANINGS. W. MCLINDEN.

Gaines Landing, Ark., Feb. 22.

Friend M., we have many cases like the one you mention. Not only down in Arkansas, but even here in Ohio, during mild winters, bees sometimes winter without any hive at all. In California, and other districts where the rain is limited, it is quite common.—The above notice will tell you whether or not it will pay you to advertise.

THE WINTER IN CALIFORNIA.

This has been the worst winter known in California for a great many years. Snow has fallen to the depth of 40 feet on the summits of the Sierra Nevadas, and at present writing it is still snowing. Generally a rainy season here foretells a good honey crop, so we must be going to have a good crop the coming season. I noticed here at Placerville this morning, almond-trees in bloom, all covered with snow. If there would be a few days warm weather, the peach-trees would be in bloom, as they generally bloom here by the middle of February.

Placerville, Cal., Feb 17. S. L. WATKINS.

ALABAMA AND ITS HONEY-PRODUCING-PLANTS, ETC.

Some of the friends who read GLEANINGS wish to hear from a point further south than Tennessee. We have 130 colonies of Italian bees on the summer stands. We increased them in 1889 to 14 colonies, and secured 50 lbs. per colony, mostly extracted. The bees are bringing in big loads of nectar from various flora, but the principal source is titi bloom. Titi is an evergreen. It blooms when 4 to 5 feet high, but grows to a height of 20 feet, and 60 per cent of our honey was from it last year. The extracted honey sold at 10 cts. per lb.; comb in 1-lb. sections, 15 cts. Bees have been on the wing nearly every day this winter, if winter you may please to call it. Only one morning, Nov. 18, 1889, my thermometer registered 32°. Last year's foliage has not all been cut from the peach, pear, plum, quince, and apple trees. The apple-tree (one of them) has young growth 8 inches long; the elder, 25 inches; strawberries and plums (Japan) are ripe. The truckers are shipping garden vegetables north by the carload. My beautiful roses are in bloom every month in the year. Young bees are flying. I had young drones flying on the 7th of January. I should be glad to see some of the friends who suffer with the cold and hunger out in Dakota down here. I tried Northwestern Texas, but the little blizzards and dry spells were far from being agreeable, and I came here. The climate and the good people who live in Alabama are all right.

Whistler, Ala., Feb. 14. A. M. HOYLE.

HOW TO SELL BUTTER AND HONEY AT GOOD PRICES.

Friend Root:—There is one thing I do not think you can agitate too much; and that is, to educate the producers of our country to sell their produce to the consumers as much as possible themselves. I think they will be surprised at what they will learn and can do by having a good article that will please their customers—that is, if they have the Christian spirit, and love their neighbors as they ought.

Two years ago my wife and I were making gilt-edge butter, but could get only 12 cents per pound for it, at the store. We thought it did not pay to make butter at that price, so I said to my wife, "Why not take some samples and find some private customers for our butter?" We did so, and secured three who would take such butter as we were making, and pay 15 cents per lb. for it. We took pains, and made nice clean sweet butter, and salted it to suit each one's taste. The result was, when winter came we got 22 cents per lb., and we could not supply the demand at that. Now, this will apply to honey, berries, and other produce. Have a good article, put it up in a neat clean package, with good weight or measure; and if you are pleasant and accommodating, and try to please your customers, success is certain. I know this to be so, for I have sold small fruit in our city of Columbus for the past 12 years, as well as honey and vegetables, and I can sell just as much now as at first. But whoever goes to peddling must make up his mind to work as hard or harder than if he were hoeing corn.

Columbus, Wis., Mar. 10. R. B. KIDDER.

A HONEY PICNIC.

Rambler's way of raising honey reminds me of a way by which we succeeded in raising about forty pounds last September. We invited the Sunday-school children to come to our place and have a honey picnic one Saturday afternoon. Thirty of them came; and after playing at various games until they were hungry they were invited to the tables. The tables were set in a nice shady place and were well supplied with bread, butter, cake, honey (both comb and extracted), and milk for them to drink. It was a very pretty sight to see them enjoy their lunch as well as their play. There is but one family among them that have honey to eat at home. After playing an hour longer they were each given a nice section of honey, put up in paper cartons, with labels, to take home. We all enjoyed this way of "raising" honey so much that we have decided that the honey picnic shall be an annual gathering as long as we have fair crops of honey. A. C. BUGBEE.

Lochiel, Ind., Feb. 13.

THE QUEEN.

I have some beautiful lines written by our village poet, a eulogy on the queen, written at my request this winter, to help me out on a lecture or bee-talk that I gave for the benefit of our Sunday-school. I was so wrought up with the beauty and majesty of the queen in writing about her that I could not express myself in terms as suitable as I thought she deserved, so I called upon him to help me out, and this is the way he has done it. T. O. PEET.

Arlington, N. J., Mar. 6.

The following is the poem:

On a throne of gold—ay, purer far
Than light of sun or moon or star,
I hold my reign, with royal sway,
Over my subjects, day by day.
My hive, a tiny, busy world,
Where labor's flag is never furled.
A lesson to the earth I teach,
Perfect beyond all human speech.
When spring, with all its luscious sweets,
Ladens the air; when summer greets
The earth with larges of delight,
Then do I reign with glorious might,
Queen of my own enchanted sphere,
Ruling my subjects far and near.
There are "workers" in our busy land,
And "drones." They're seen on every hand:
But a lesson from the busy bee
The outside world may learn from me:
That in labor there is sweetest zest;
That the fruits of toil are still the best.

JOHN KEYNTON.

Pretty well done for your village poet, friend P. I should have enjoyed being present with the rest of your Sunday-school.

HOW WE FIX OUR L. HIVES TO MOVE THEM.

In the spring of 1886 we moved 24 colonies in our quadruple hives 8 miles, over some very rough roads, on a lumber wagon, with no springs, and we did not break a comb nor injure the bees in the least. We use wooden frames made out of ⅞x⅞ lumber, 8 frames to the hive. When the frames are in the hive there is a ⅜ space above the frames at the top edge of the hive. Now, to secure the frames so they would not slide together we cut a piece of frame stuff just long enough to go across the

frames. We cleaned off the frames on top of each end, and laid one of those pieces flatwise across the ends of the frames, and nailed with 3-penny wire nails down through the piece and frames into the wooden rabbets that the frames rest on, putting three nails into each piece—one at each end and one in the middle. We could have put one nail into each frame if we had chosen, then the frames could not move, as the piece nailed on top holds them firm. This way of fastening will not cost a cent, as the pieces of frame stuff can be used after to make frames of. It is a very easy thing to pry up the pieces and take them out, after we have the bees moved, and then we have no staples to be in the way when we are handling the frames. As for spacers in the hanging frames, I don't want any. I can, with my eyes and fingers, space them in a quarter of a minute, very nearly as true and even as can be done with a measure. E. FRANCE.

Platteville, Wis., Feb. 5.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 158.—*I have two out-apiaries, three and five miles apart respectively, from my yard. Would it be cheaper for me to keep a horse and wagon the year round, or hire a livery during that part of the year when I need to visit the apiary or haul sections, supers, etc., back and forth?*

Keep a horse and wagon.

Wisconsin. S. W. GEO. GRIMM.

If that is all the use you have for a horse and wagon, hire them.

Ohio. N. W. A. B. MASON.

I believe I would have the horse. They are convenient at all seasons.

Michigan. C. A. J. COOK.

Probably the livery, if not too high priced, if you have no use for the horse for any other purpose.

New York. C. G. M. DOOLITTLE.

I suspect that would depend much upon how you are situated. For me it is much cheaper to keep the rig myself.

Illinois. N. C. C. MILLER.

Knowing your surroundings and conditions, you ought to be able to answer that question better than any one else.

Illinois. MRS. L. HARRISON.

It seems to me that the owner of three apiaries would need and could afford to keep a horse the year round.

Illinois. N. C. J. A. GREEN.

That depends upon the cost of the livery and the cost of keeping a horse in your place, and the way in which you work your bees, etc.

New York. C. P. H. ELWOOD.

That depends upon how often the inquirer visits his apiaries, and what the expense of hiring a livery is. With me it is cheaper to keep a team; and very much more pleasant.

Vermont. N. W. A. E. MANUM.

This can be answered only by one who knows the local circumstances.

Cuba. O. O. POPPLETON.

With our management and hives, and if we had no other use for a horse, we should prefer to hire a horse and a buggy or wagon.

Illinois. N. W. DADANT & SON.

It depends on how much the horse may do during the rest of the year to help pay his board. I guess it will be safer for you to answer this question for yourself.

Ohio. N. W. H. R. BOARDMAN.

If you have no other use for the wagon and horse, I have no doubt it would be much cheaper to hire, as a horse must be fed and attended to; and no doubt that the cost of his keeping during the winter only will more than exceed the rent.

Louisiana. E. C. P. L. VIALLON.

Sometimes a horse and wagon can be secured for a part of the time on very favorable terms, and sometimes it can not. Let the good brother inquire and see what he can do. On general principles, I think he will oftener find it cheaper to own his rig than to hire it.

Ohio. N. W. E. E. HASTY.

Perhaps a bargain could be made with a livery for the season that would enable you to hire a horse cheaper than you can keep one. There would be this disadvantage—you would have to get acquainted with a new horse nearly every time. You might get a kicker or a baulker. So, taking it all in all, I would keep a horse the year round.

New York. E. RAMBLER.

I should say, hire a horse and wagon if you have no other use for the team. We keep two horses of our own, and all the wagons we want to use. But we have eleven acres of land to work in small fruit, etc. We hire an extra team about a month when we are extracting honey, at a cost of $1.50 per day, and feed the team, which is much cheaper than to own the extra team, and feed and care for them the whole year.

Wisconsin. S. W. E. FRANCE.

I have tried both ways. I found it very difficult to manage my bees in out-apiaries without a horse at my own control, that I could command at a moment's warning. The most clean money I ever made in bees was when I rented a place to live and keep the bees for $100 per year. I kept 100 stocks in the one place. My advice is, to hesitate before establishing an out-apiary and increasing expenses.

Connecticut. S. W. L. C. ROOT.

You are the man to solve this problem. Find out what the liveries will cost you, then figure the other side—cost of wagon, horse, harness, and feed, and the probable time that they will last. You may decide that it is cheaper to hire; but most bee-keepers have uses for their horses, other than going back and forth to their apiaries. I hitch mine up almost daily (Sundays not excepted), and like to pull the lines over good ones that can go faster than I can.

Wisconsin. S. W. S. I. FREEBORN.

Every thing depends upon your circumstances. If I were in your place, and had a small farm, and could get a cheap pasture and a good barn, or room to build one, and had a wife or daughter who liked

riding, and if I liked to ride myself (and I do), I would get a horse, surely. But, on the other hand, if I ran a newspaper and advertised for a livery stable, and could not get my pay in any other way, and had no place to keep a horse, and my wife hated the pesky thing, and I did not care to ride, I believe I would hire a livery, wouldn't you? I wouldn't place an out-apiary so near as three miles to another; nothing less than four, and six miles preferred.

Michigan. S. W. JAMES HEDDON.

The above has been answered so fully that there is little to add, and friend Heddon gives the final summing-up in his peculiar, terse, and quaint manner. For my part, unless my means were exceedingly limited I would have a horse and buggy of some sort, and then I would make it a study to find something for the horse to do during the rest of the year, so as to make him pay for his feed. For some time we have been keeping three horses here at the Home of the Honey-bees; and when the weather will permit I make it as much a part of the business to hunt up work for the horses as for the men and boys. In fact, we have a regular table of prices, something like this: One horse, wagon, and driver, 25 cents an hour, for less than 10 hours; over 10 hours, 20 cents; two horses and driver, including the use of any of our farming tools, 35 cents per hour; 10 hours or over, 30 cents per hour. In this way we manage to keep the horses busy about every day if the weather permits. During the present season we shall have four horses, including the pony. The pony, however, belongs to the women-folks, with the understanding that they are to have him whenever they want him, no matter about the business. When they do not want him we can work him as circumstances may require.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds

JAMES F. W. JOHNSTON.

OUTDOOR GARDENING FOR 1890.

At one time in February we were just about planting our peas, but it rained, and made the ground wet; and from that time on, through the whole month of March there has not been a time when the soil and weather were suitable for planting. This second day of April it came out quite warm and summery; but as there was a heavy frost last night, we could not find ground in fit condition to receive seed, except the south side of some ridges left where the new Rose celery grew last year. It made such a tremendous growth that the ridges were nearly two feet high; and after the celery was taken out they stood all winter, high enough to be free from the wet. With a wheel-hoe we made a shallow furrow on the south side, near the top of the ridge, and the ground was as mellow and warm under the April sun as one could ask—that is, if we did not go down more than two or three inches. We planted both Alaska and American Wonder; and the ground raked up so nice and mellow, when we got through we put in Eclipse beets, Scarlet Globe radish, Silver King and White Victoria onions, so we have got some outdoor gardening under way after all. Some American Wonder peas on the south side of our brick buildings are now about two inches high; but they have been frozen and thawed so many times during March that they look rather sorrowful. A good many other plants—spinach, corn salad, etc., that stood the winter with comparatively little injury, have been a good deal injured by frost during the last week of March. I am inclined to think the very best way to start early stuff, especially where we have so much wet, is to put it on ridges like those left by the celery. Of course, we can not do very much cultivating among them by horse power; but the very early can be worked by hand, especially as not very much of any thing is needed for the very first. The main crops fit to be cultivated by horse power come along in a very few days after.

April 3.—To-day we are having a succession of warm April showers. The temperature is 60, and no wind. Our tomato-plants are in pots outdoors in the rain. Sash are all raised to the highest notch; greenhouses are opened as wide as possible; transplanted plants in the open air are beginning to smile at the biting frosts that have made them look so sad and sorrowful. I have just asked Mr. Weed how much it would be worth if we could strip every pane of glass from all our greenhouses. He said it would be worth a five-dollar bill anyhow, just for this one day. You may say that plenty of ventilation and plenty of water will do about as well. Now, my experience is that it will not do any such thing. A drizzling April shower for several hours, with an occasional hour of sunshine, is ahead of any watering that man can invent. Why not go back to the old time-honored plan of movable sash, to be lifted on and off? Why, it is too much labor. It is true, we may not need the sash again for days; but it is also true that they may be needed in only a few hours. There is no remedy, so far as I can see, except a realization of my particular hobby for months past; namely, having our greenhouses arranged so that the entire covering can be removed in a few minutes, and put back again in a few minutes, all to be done by proper machinery, and under the control of a single individual. Our tomato-plants had commenced to be infested with the green fly. I know from experience that this April shower will cure them completely; that is, where they are in pots so we can set them outdoors. Those in beds that can not be exposed to rain, will have to suffer. Sprinkling them for hours together so as to imitate rain will not answer unless there can be an amount of ventilation almost equivalent to the open air, so that they may dry off fast enough to avoid the consequences of too much wet. It is a mystery to me why florists and raisers of vegetable-plants do not see the matter as I do.

OUR HOMES.

Rejoiceth not in iniquity—I. COR. 13:6.

A FEW evenings ago, before our teachers' meeting opened, I remarked that I had got hold of a new and beautiful text. When asked what it was, I repeated the words at the head of this talk.

"Why," said our pastor, "you have had that before;" but when I told them I was sure they must be mistaken, one of the teachers also insisted that it was either the very same text I had a few weeks ago, or remarkably like it. And she added, further, that it was certainly something about iniquity. I felt sure I was right; but it was some minutes before I remembered my other text: "Thou hast loved righteousness and hated iniquity." Of course, you all remember the latter. In that case it was *Jesus* who hated *iniquity;* but in the text before us, Paul is speaking of human beings who, if they do not really love iniquity, perhaps sometimes unconsciously have a fashion of rejoicing, or at least seeming to be pleased, when they come across iniquity in the acts of their friends and "neighbors." Of course, we do not rejoice at finding iniquity in our *own* hearts—at least I never heard of such a case. But I am afraid that even the best of us do, too often, harbor thoughts and feelings that are at least a little like rejoicing. As an illustration of rejoicing in iniquity:

A friend of mine is a schoolteacher. After having taught quite successfully in a country school he was invited to take a larger school in a town near by. I do not know whether it is always true that there are more bad boys in the town than in the country, but it seemed so in this case; and these boys, emboldened, probably, by their previous experience in getting the upper hand of teachers, persecuted our friend severely. He went to the directors about it, and they told him to make the boys behave, even if he had to take the poker or a stick of wood, and *knock them down.* My friend, however, is a follower of Christ, and he told them he did not feel called upon to resort to such methods to enforce obedience with grown-up young men. The boys discovered this, and took advantage of what might be called his Quaker principles, and overpowered him. As he stated it to me I told him I believed he erred on the right side. The directors, however, thought differently. Instead of expelling the boy who took the lead, they told my friend they preferred to hire a teacher who would enforce obedience.

Let us, while we are about it, consider this matter a little, even if we are digressing from the subject of our text. Those who read the papers are aware that it is not uncommon to have lawsuits grow out of this very matter of making bad boys obey the teacher at school. Pupils have been maimed for life, and I do not know but that a few have been killed by teachers who felt it incumbent on them to enforce obedience, even if they were obliged to use any weapon they could get hold of. Which is the better way—to ask the directors to take the boy out of school, or administer a thrashing that seems the only alternative left, because he was never made to mind at home? I suppose that circumstances would alter cases; but I should very much fear to advise a teacher to conquer in that way, for fear that he might let his temper get the better of him, or by mistake do more injury than he intended to do. All things considered, I felt pretty well satisfied that my advice was safe, even though my friend lost his school by following it. Many teachers have a faculty, or have learned by experience, if you choose, to enforce obedience without striking a blow, something on the principle that I made old Charlie step into the thills by simply having a piece of lath in my hand. Now for the application of our text:

My friend secured another school, and taught it quite successfully. The directors of the first school employed another teacher who thought he could make the boys mind. Of course, my friend was watching anxiously to see how teacher No. 2 would come out. As he is a follower of Christ, he could not consistently hope that No. 2 would have trouble with the boys. If he did have trouble trying to conquer by brute force and main strength, would it be wrong for teacher No. 1 to feel glad just a little? Certainly it would, because it would be rejoicing in iniquity. My friend prayed over it, and climbed above the temptation. No doubt he said many times in his heart, "Get thee behind me, Satan. I do not want this teacher to have any trouble, even if I did have trouble myself. I honestly hope he will succeed with the boys, even though I failed." He did all this, but he said it was about all that human nature could stand. Now, dear friends, have you any like temptations? Is it a hard matter for you to go through life without any disposition to rejoice in iniquity?

This disposition to rejoice in iniquity is, perhaps, the foundation for the greater part of the scandal and uncharitable speaking that we have in the world. Somebody who has borne a good reputation, and made a fair record for years, suddenly does something shameful. The story of it passes from mouth to mouth. It seems as if the greater part of the community talk it over as if it were not only something funny but pleasant to think of. Of course, they say, "Is it possible?" and, again, "Who would have thought it, after all the profession he has made?" and still others, a little lower down in the scale, add, "There is one of your pretty Christians;" and then somebody else says, "Well, that is about the way they all turn out. The world is full of hypocrisy;" and then somebody adds, "Well, I do not make any profession; and I guess, when you get right down to it, it is all a pretense, anyhow, and just a kind of game to make folks believe they are a little better than common people."

Did you ever hear any such talk as the above, dear friends? Were you ever in any sense guilty of rejoicing in iniquity in that way? Well, I hope you are not. For one, I am guilty in that very line. I do not mean that I indulge in any such speeches as those quoted last; but I catch myself every

little while doing something or saying something that is just a little bit in the line of rejoicing in iniquity. I am guilty, too, in the way of exaggeration when repeating accounts of the wrong doing of my fellow-men. Somehow—I do not know how it is—it seems as if I did not mean to do it; and yet before I know it, it slips from my tongue. It is very natural for me to exaggerate in repeating things. When I get to telling a story, Satan suggests that a little guessing at something I do not know *all* about will not be out of the way. With the terrible tussles I have had with the evil one, and of the triumphs that have come, it would seem as if I ought to be a pretty fair sort of Christian. My friends, I *have* reformed and improved in some directions; but I am almost as bad in some other things as I ever was. I told you of a certain sermon a few Sundays ago, and of the conflict and final triumph over certain worldly matters. Well, the next Monday morning I started for the factory to take up the duties of the day, with a heart full of praise to God, and, as I *supposed*, love for every one. It did not seem possible then that there was any thing in my heart that could prompt me to rejoice in *any* kind of iniquity. The first person I met told me of some wrong doing that aroused my indignation. In a moment it brought to mind some experience I had had with the same individual. Now, there was not a particle of need that I should say any thing about it at all, or help make out a worse case against the poor brother under discussion; but before I knew it I told the circumstances to my informant; and just as soon as he passed along I discovered that I had not only told a truth that need never have been told, but I had added a little. Now, dear friends, you might suppose that my addition would be in the good brother's favor, and a little plea for his better qualities, but it was not. I felt sad and ashamed to think that I had, the very first thing that bright new morning, at the beginning of another week, been rejoicing over iniquity. After the victories of the preceding day, I fear I had begun to consider myself just a little bit of a saint. I had been repeating the verses and the promises to those who overcome, and I was one of the "overcoming" sort—at least I thought I was. But now I felt like saying to myself, "You *poor miserable* specimen of a Christian! You have fought a pretty fair battle in one line, and Satan has been routed; but in other respects you are *A. I. Root* still, and a very ordinary, commonplace sort of chap too. You are the "same old sixpence," and are likely to be to the end of your days; and the sooner you get rid of all moonshiny ideas in regard to being a *saint* among a lot of *sinners*, the better it will be for you."

Once in a while I get on a good streak, and take the part of somebody who has been assaulted; but sometimes I think that my greatest motive in doing *this* is that I may get a little praise by hearing some one present say, "There, that is just like you. You find something *good* in everybody."

A *few* times I have heard remarks like the above; but it came from somebody who did not know me very well—somebody who generally sees me with my Sunday clothes on, and hears me talk when I feel very pleasant and kind. Yes, bad as I am I do have *good streaks* once in a while; but, dear friends, I do have bad streaks too; and it seems to me as I write to-day, that the very worst thing about me now is that old unconquerable habit of seeming to rejoice just a little when somebody shows out something sinful. I do not know how it is, for I am sure that, as a rule, I do *love righteousness* and *hate iniquity*. Yes, in the abstract I am *hungering* and *thirsting* after righteousness; but for all that it comes natural to have a little fun when somebody has exhibited human weakness. In the mails yesterday or the day before, some good brother wrote to me to the effect that *he too* was rejoicing in having been emancipated from the bondage of a cloud that hung over *his* spiritual progress. Said he, "Bro. Root, the whole trouble with me was *pride;* and the biggest part of the cloud was the consequences and results of pride. I wonder if it is not possible that the cloud that darkened your spiritual sky was in the same line." I guess, dear friends, it was; and one reason why it comes so natural for me to rejoice in iniquity, is, that I begin to show off something after this fashion:

"You see, friends, what a bad and wicked world this is. There is wickedness all round about us. The greater part of the people are corrupt. Now, do you think I would have done any thing like that? Why, I would no more be guilty of that than any thing in the world. I got past such things as that years ago." And then I congratulate myself on being a little ahead of the rest of the world.

Now, friends, right here is where the rejoicing in iniquity comes in. We get it into our heads that we should stand a little higher by holding up prominently the weaknesses and delinquencies of others, just in the same way that rivals in business matters run down each other to exalt themselves. How often the editors of rival papers and journals fall into this deplorable sin! They watch each other (which is right); and when the rival brother makes a blunder it is held up and commented on in a way calculated to draw a contrast in favor of the writer, who, perhaps, without knowing it or thinking of it, gets to rejoicing in iniquity. In fact, he often feels *tickled* to feel that he has got hold of something that will rub hard on his brother-editor, and put him in a bad predicament, if he tries to explain it away. I fear some of my editorial brethren will hardly believe me when I assure them that, by speaking well of an opponent, they will exalt themselves *ten times more* than to be picking at them. Christian courtesy should keep us from holding up to public view every human weakness. May God grant that the day may soon come when there shall be this Christian courtesy among editors. Once in a while somebody sends me a communication reflecting on some of the other bee-journals. When we tell him we can not give it a place in our columns, he sometimes replies that the public good *demands* that it be made public. Now, even

if this were true, I should be sadly out of place in undertaking to make it public. You may say, "How, then, shall community be warned?" Well, I can not answer that; but I do feel sure that *I* am not the one to make public the shortcomings of some of the other bee-journals. One very plain reason why I should not undertake it is because the world at large will consider me an *interested* party. For this reason alone, we should forbear. Christianity demands that we be *generous* toward rivals, even if we are generous to nobody else. Beware how you undertake any thing that may have even the semblance of rejoicing in iniquity. Reply something like this:

"My friend, he is a brother-editor; and it would be in very bad taste, to say the least, for me to undertake to right a matter of this kind. Even if it were *true* that the matter ought to be righted, *I* am not the one to do it."

There is another sort of rejoicing in iniquity, that comes in the line of collecting news for our daily and weekly papers. I once attended a convention or gathering of a county editor and his contributors. He gave them some advice in regard to the kind of news to look up. Said he in substance:

"Friends, please let us remember that the public are always greedy for any thing sensational. A case of poisoning, for instance, will attract great numbers of readers who have not looked at a paper for months; and we get quite a crop of *new subscribers* whenever any thing of this kind starts out, like poison, murder, bank robbery, etc."

You see how it is that the editor gets into a way of rejoicing in iniquity. Very soon his readers, also, learn to rejoice; and if the editor can not give them a dish of scandal, or something in that line, once in about so often, they complain that the paper is getting stale and dull, and may be they will not subscribe. How about the poor victims of the poisoning, murder, and scandal? How about the inmates who find a place in the county jail? Oh! that is a different thing; and I assure you, friends, it *is* a far different thing. As I visit the jail week after week, and meet one new comer after another, and take them by the hand, I almost always find the county paper spread out on the table before him. He has read what the cold unfeeling world has to say about him, and he gets a glimpse of the estimation in which he is held, and sees how people generally look down on him with feelings of disgust. To a certain extent that is right and proper, I admit. The way of the transgressor is hard, and it *ought* to be hard. I do not believe in screening transgressors from the law, nor from public opinion; but, O dear friends, we should take care, especially we who profess to be followers of Christ Jesus, that we do not in any way or sense rejoice in iniquity. We may rejoice that the guilty one is brought to justice; but we should think of him with feelings of sadness and sorrow, and never in the line of rejoicing.

And now, in conclusion, what is the remedy? What will help us to keep ourselves from rejoicing in iniquity? Let us read a verse or two before and after the text I have been considering. Just before the text comes my favorite words, "Thinketh no evil;" and after the text we read, "But rejoiceth in the truth." Let us rejoice, dear friends, in the truth as exemplified in Christ Jesus—never in iniquity. The next verse reads: "Beareth all things, believeth all things, hopeth all things, endureth all things." What a contrast is such a spirit! Well, now I want to go back to my favorite chapter, the 6th of Luke, where we find a key to it all. Jesus says, "But I say unto you which hear, Love your enemies;" and further on, "Bless them that curse you, and pray for them that despitefully use you." If we only have the love of Christ in our hearts for all our fellow-men, there will be no danger of our rejoicing in any sort of iniquity. A good friend of mine once told me, when I was a boy, the reason why I could not remember, was because I did not *care* enough about the thing I forgot. I thought that was a pretty hard saying; but I was obliged to confess, after the experience of later years, that he was right. And now, my friends, the reason why we unconsciously fall into a way of rejoicing in iniquity is because we have not love enough in our hearts for humanity round about us. There is no use in evading it or in trying to dispute it. It is the lack of Christian spirit that prompts to all these things. If we smile a little, or feel a little bit pleased when our friends fall into iniquity, it indicates very plainly that we do not love them very much. But Jesus says it is not enough to love our *friends—we must love our enemies.* "What does that mean?" does somebody ask? Why, it means that you must rejoice at an opportunity of doing them good. Well, if we are watching for chances to do good, both to friends and enemies, how in the world shall we rejoice (even the least particle) when either friends or enemies get into trouble? It is the old story of loving self instead of humanity. Pride comes from self-love; and self-love and its legitimate fruit, pride, is the cause of almost all the trouble—yes, even the crime—in this world. No wonder that Jesus was so emphatic in that 6th chapter of Luke, in those wonderful verses from the 27th to the 46th, exhorting people to be liberal, to be above things that are selfish and little and mean. He says, "Do good and lend, hoping for nothing again, and your reward shall be great, and ye shall be called the children of the Highest." It requires an effort to rise above selfish thoughts and feelings, I know; but a reward comes right away when we do it.

A few days ago one of our boys came to me, after he had got his pay (it was Saturday), saying, "Mr. Root, I can't afford to work for you any longer for the pay I have been getting."

"All right, my friend," said I, instantly. "Let us be friends all the same, shall we not? even though you do work for somebody else." His next words were:

"Mr. Root, I have got another job where I can get better wages than you have been giving me."

I replied at once, "Can you? Well, I am glad to hear it, for I am always glad to know that any of the friends who work here have succeeded in doing better than I can afford to do by them. I suppose you have, of course, a steady job right along, winter and summer?"

He replied that he had. Then I added, "That is good; I am glad of it."

Now, this young friend occupied an important place, and it is right in our busy season, so it was a little hard to spare him; therefore it required something of an effort for me to say what I did, and say it truthfully; but I felt happy after having said it; and I am sure I shall never rejoice, even if he should be disappointed. In fact, he can have his place back again at any time if he chooses —that is, while we are as busy as we are now. And then think what it is worth, dear friends, to have pleasant feelings instead of unkind ones, between you and your fellow-men, when differences of this kind come up. Let us ask ourselves the question over and over again, "Am I in *any way* in danger of rejoicing in *any sort* of *iniquity?*"

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

ANOTHER FRIEND TAKES THE PLEDGE.

In reading the Tobacco Column I have decided to quit the use of tobacco. Please send me a smoker; and if I ever use it again I will pay for the smoker.

Barnard, Mo., Jan. 25. S. K. LANDFATHER.

ANOTHER BROTHER WHO IS REJOICING IN DELIVERANCE FROM THE SIN OF THE TOBACCO HABIT.

Friend R., as you are aware, I have been a subscriber to GLEANINGS for some time. My attention was called to the Tobacco Column; and the more I read, the more I wanted to read, and the query arose in my mind, "Can I be a Christian, and use tobacco?" Well, I studied about the matter considerably, and whenever GLEANINGS came to hand, the Tobacco Column was the first looked for, to see what other people were doing about it. I finally concluded that, if other people could quit, so could I. On the 13th day of Jan., 1890, the pipe and tobacco went, after using them ever since I was 6 years old. I am 39 now. By the help of my Savior I intend never to use them again. It was through your influence, Bro. R., that I quit. I feel better, both in body and mind, since quitting the use of tobacco. I don't want any smoker, for I have one. Hoping you will still keep up the strife against tobacco, I am truly yours, A. J. MEREDITH.

Nettleton, Ark., Mar. 3.

May God bless you, dear brother, for your kind words, and especially for your full, frank testimony, freely given, to be used in print for the benefit and encouragement of others who are striving to do likewise. May the Lord be praised for such testimony!

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APR. 15, 1890.

Do good to them which hate you.—LUKE 6:27.

"A YEAR AMONG THE BEES," REDUCED.

THE publishers of the above, T. G. Newman & Son, of Chicago, have reduced the price of that valuable and interesting little work from 75 to 50 cents, cloth bound. We will furnish it hereafter at that price.

TO OUR ADVERTISERS.

As we expect to close up our forms on the 4th day before date of publication, our advertisers must get in their copy or changes of advertisements as soon as the 11th and 26th of the month. A few of our patrons have been a little late.

MAKING HONEY-LABELS STICK TO TIN PAILS.

YEARS ago I decided that the only sure way was to have the label go clear around a pail or can. If, however, such a label is too expensive, put a band of nice-looking paper around the can and stick your label to it. Various recipes have been given, and perhaps some of them "stick." My experience is, however, that some if not all are liable to "let go" sooner or later. Washing the tin with an alkali, such as saleratus or soda water, so as to remove grease, helps materially. Adding honey or sugar to the paste, also helps. But where it is going to make serious trouble when the label comes off, I believe I should prefer a band of paper going clear around. If anybody knows of any thing better, we should be very glad to hear from him.

SENDING GOODS BY EXPRESS THAT MIGHT JUST AS WELL GO BY FREIGHT.

THE amount of money thrown away every day in sending and ordering hive stuff by express, when there is no immediate need of it, is appalling. A few days ago one of our bee-friends away down in Texas died. In order to settle up an account with us his good wife sent a foundation-mill, second-hand boiler and dipping-boards, 30 or 40 lbs. of wax, and other like goods, all by express. The express charges alone amounted to over $10.00, while the freight would not have been over one-fourth of that amount. There was no urgent need of the goods at all, and yet no friend or neighbor, or even the express agent, saw fit to vouchsafe the information that such heavy, bulky goods, are never sent

by express unless they are wanted urgently by some specified time, so that freight would be too slow. A great many people thoughtlessly order goods *C. O. D.* in the same way and then get soured toward the express companies, and perhaps soured toward the world, just because of the want of knowledge of ordinary business customs. This latter is well illustrated by an extract which we make from the seed catalogue of our neighbors Frank Ford & Son, of Ravenna, as follows:

It is not good economy, to say the least, to order potatoes sent by express if over ¼ bushel. A good customer ordered 1½ bushels potatoes last spring, sent C. O. D. to Cincinnati. We did as ordered. The potatoes cost him $1.75, and the express charges were $1.70. We soon heard from him, saying, "I wish to inquire of you if these outrageous express charges are correct. If they are, I want you to mark me off from your list, as henceforth I wish nothing further from Frank Ford & Son or Wells, Fargo & Co." The express charges were correct, with cost of collection. But the potatoes could have gone by freight in two or three days for 40 cents, or a full barrel for the same.

Moral.—If you are not sure what the charges will be, ask your express agent to tell you beforehand what it will cost. As a general thing he can tell you, also, about what it would cost to have the same article sent by freight. A great many times, however, there is *no* way of sending certain goods of small value without costing more than they are worth. Much of the bitterness we have heard uttered against the express companies is caused by this very lack of forethought, or a sort of heedlessness, in sending off or for goods.

FOUNDATION WITHOUT DIPPING.

ONE of our advertisers sends us a beautiful sample of brood foundation which he says was made from wax without dipping. It was turned out from one of our mills. As the wax was quite thick before rolling, the cell-walls are deep and beautifully filled out. We made some attempt at this years ago, but the testimony at that time was that the walls made under so great pressure were too hard, and were not as readily accepted by the bees. This is one reason why the Given foundation works so well in the hive—because the wax is simply indented. However, it would be nothing strange if we should make still greater improvements in foundation-making, and that, too, in *undipped* foundation; and it is possible that later experiments might reverse or modify the decision arrived at years ago.

SQUARE CANS VERSUS BARRELS.

ONE of our subscribers, having shipped three barrels of honey to a commission house a few months ago, complained that they had made no returns. The house gave, as a reason, that the honey was in cypress barrels, and such packages are not wanted in that market (Philadelphia), and that square cans are preferred. While they may not be making any extra effort to move off that honey, it might not be amiss for the extracted-honey men to inquire what packages are in demand—square cans or barrels, in the market to which they propose shipping. Square cans are preferred in most cities. All California honey comes in that shape. Remember that the 60-lb. tins are just as cheap as the wooden receptacles, and they won't shrink. Old second-hand barrels are cheaper, but they are liable to give a bad taint to the honey.

DELAY IN FILLING ORDERS.

NOTWITHSTANDING the fact that we added a new 60 H. P. boiler last fall, and have lately added new and heavy machinery to increase our capacity for filling orders promptly, business has increased beyond our anticipations and added facilities. We have secured from other manufacturers already over a million sections to help us fill orders more promptly, still we are somewhat behind, and can not make as prompt shipments as we should like. We are adding more help wherever we can work more in, and hope to fill orders more promptly. Some of our best helpers are and have been laid off from work on account of sickness. We have shipped, since the first of January, twelve full carloads, each consigned to one man or firm, besides a multitude of smaller orders, most of which are not very small; and the run on Dovetailed hives is simply marvelous. If you do not get your goods promptly, remember we are doing the best we can, and try to have patience. If any one gets tired waiting, remember your money is ready to be returned any time you call for it, provided the goods have not been shipped when your request comes.

OUR NEW PRINTING-PRESS.

IT takes just six seconds to print an entire copy of GLEANINGS, such as you are now reading, exclusive of the cover. Not only can it be done in six seconds *occasionally*, but our pressman does it right straight along, hour after hour. The sheets are fed into the press at the rate of one every three seconds. This prints one side. The outside is then done in the same way. On account of the slowness of the former press we have been unable to print fast enough to send a price list to each of our customers once a year. With the new press, however, we expect to do this. If you do not get one as often as once a year, drop us a postal card and we will see that your name is on the list.

SPECIAL NOTICES.

A CARLOAD OF DAISY WHEELBARROWS.

Two years ago we received from the factory a carload of over 500 Daisy wheelbarrows, which have all been disposed of, and another carload is coming. These barrows excite praise and admiration wherever they go. See our ad. on the cover, for further particulars and price.

PRICE OF LAWN-MOWERS STILL LOWER.

We call your attention to our advertisement of lawn-mowers, on the cover of this number. You will notice the price is lower than it was last year, yet the quality is not sacrificed. I doubt if you can find as good lawn-mowers in the market as the Globe, at any price; and when you consider the very low price at which they are sold, surely no one need be without a good mower who has any use for one.

THE DIBBERN BEE-ESCAPE.

We have made arrangements with the inventor so that we can furnish his escapes at his prices; viz.:

1 bee-escape, mounted in small board, for pattern	$ 35
1 bee-escape (without board, as above)	20
10 " " " " "	1 80
100 " " " " "	16 50

When sent by mail add 3c each extra for escape, without small board, and 10c extra with.

1 complete board, large enough to cover Dovetailed hive, with two bee-escapes	$ 50
10 do	3 30
100 do	30 00

For Simplicity and chaff hives, same price. The horizontal cones are made of tinned wire cloth, and soldered on to a circle of tin. In the complete board they are let into the wood so as to leave no projections above or below. We have already tested them to a limited extent, and find they work satisfactorily. They will be a great boon in ridding supers of bees.

BEESWAX WANTED.

Until further notice we will pay 25c cash, 28 cents in trade, for average wax delivered here. This is 1c per lb. higher than we have been paying. Selling price will be 31c for average, 35c for selected.

GRAPEVINES.

Now is the time for planting; and for immediate orders we can furnish strong two-year-old Concord vines, in lots of 100, for $4.00. Our regular price in the price list is $6.50. We give this low figure, as the vines must be moved if not sold soon.

EARLY PURITAN POTATOES.

Besides our own stock here of our own raising, we have 10 bushels in Crete, Neb. In order to dispose of them at once we will sell them for $1.25 per bushel. They are worth here $1.50. We offer them for $1.25 on account of the expense of shipping such bulky goods so far.

MAPLE SUGAR.

We now have a good stock of maple sugar that we can furnish promptly. We grade it the same as in former years, at 11 cts. per lb. for No. 1; 10 cts. for No. 2; 9 cts. for No. 3, and 8 cts. for No. 4; ½ ct. less in 50-lb. lots; 1 c. less in barrel lots of 300 lbs. The greater part of our stock comes in the two middle grades, Nos. 2 and 3. We have a limited quantity of syrup in 1-gallon cans, at $1.10 per gallon; or in 10-gallon lots at $1.00.

IGNOTUM TOMATO SEED.

There, we have gone and done it again, just as we did with the Japanese buckwheat. We have paid more for the tomato-seed than we shall in all probability ever get back. As we have 15 or 20 lbs. of Ignotum seed still remaining on our hands, and the season for planting in most localities is pretty nearly at an end, for the rest of the season the price will be reduced to 50 cents per ounce, or $6.00 per lb.; ¼ oz., 15 cents. Hundreds of testimonials seem to indicate that the world has never seen a better all-purpose tomato.

RED RASPBERRIES AS A HONEY-PLANT.

We have no idea that it will pay to raise red raspberries alone for honey, but we do think, notwithstanding, it would pay about as well to raise them for honey alone, as almost any other plant, and when we add to this that it usually pays well for its beautiful fruit, we may call it one of the most promising honey-plants. For immediate orders, before we commence cultivating them, we will furnish either the Turner or Cuthbert for $1.25 per 100, which is just one-half our usual prices. They can be sent by mail at an addition of 25 cts. per 100.

DOUBLE-TOP BROOD-FRAMES.

Since the publication of the article on page 204, March GLEANINGS, a number have inquired the price of the double-top brood-frame.

We will furnish them for 30 cts. per 100 more than our regular frames. They may be wired, metal cornered, or all wood. If you order them already put up, the price will be 50 cts. per 100 extra; in flat, 30 cts. per 100 extra. Where comb-guides are wanted, add 20 cts. extra per 100; but we would not advise the use of comb-guides with the double-top-bar frame.

VEGETABLE-PLANTS.

Our three greenhouses are now completely stocked, as close as the plants can stand, with cabbage, lettuce, celery, and tomato plants. A great part of the cabbage and lettuce is, however, now in the open air. Our boys and girls have got their arrangements so fixed that the plants are frequently in the mail-bags within one hour from the time they were taken out of the ground. As fast as the letters are opened, the plant orders are put in a separate place for me to carry to the boys in the greenhouse. Thus you see they catch each train as it passes our establishment, within a few hours after the order reached us. We have a full supply of every thing except pepper-plants and cauliflower. These have acted kind o' contrary this spring, and we have none yet that I call fit to send out.

SECOND-HAND FOUNDATION MILLS.

We have the following second-hand foundation mills to dispose of: One 10-inch mill for $15.00; has been used almost none. It was made two or three years ago, and, of course, is not equal to a new mill made now, but a bargain at the price—$15.00. One 10-inch mill, $11.00. This mill has been used considerably; was made a number of years ago. It will still make fair foundation where you make principally for your own use, and are not particular about its being first class. It is surely worth $11.00 to some one.

We have a second-hand 10-inch dipping-tank, with 4 boards, that we will sell with either of the above for $1 00. One 12-inch Dunham mill. This was originally used by Dadant & Son in making their heavy brood foundation. It has made about 200 lbs. since it left their hands (when it sold for $25 00), and it is still in fair condition; will sell for $20.00.

SAWS THAT NEVER NEED FILLING.

Ever since we first gave notice of the Star saws, some years ago, the blades of which were sold so cheap that a new one could be put in cheaper than to have a saw filed, there has been an immense trade in them. The Millers Falls Co. have recently got out the saw shown in the cut below, that takes

a 14-inch blade, and yet the price is only 50 cts.—saw, blade, and all. Extra blades cost a dollar a dozen; therefore, when your saw needs sharpening it costs less than 10 cts. to have a bright new blade, ready for business. And this is not all. These Star saw-blades, by some special process, are given a higher temper than any thing else in the saw line. You can saw a board or a bone, saw off a gas-pipe or a gun-barrel, and all with the same saw. The first one I ever saw I carried down into our machine shop, gave it to our machinist, and told him to see what it was worth. After a few minutes' trial he asked the price and handed out the money, without a word. The truth is, he had never seen any thing like it before, for sawing iron and steel. The one we picture is made a specialty, to be hung up in the kitchen; and I rather think, my friend, you can not make your wife a better present than to get her one of these saws, to hang up in her kitchen. If you behave yourself, may be she will lend it to you occasionally; but, be sure to bring it back when you are done with it. If you don't, there may be a family jar. If wanted by mail, the price will be 20c extra. Postage on blades, 10c per doz. Star butcher saws have been reduced in price. See page 42 of our latest price list.

CONVENTION NOTICES.

The Capital Bee-keepers' Association will meet in the Supervisor's Room of the Court-house, Springfield, Ill., May 7, 1890, at 10 A.M. All interested are invited. C. E. YOCUM, Sec'y.

A meeting of the Erie Co., N. Y., Bee-keepers' Association will be held in Hamburg, N. Y., April 19, at 10 A.M. and 1 P.M.
MRS. CHAS. FAVILLE, Sec'y.

PRICE LISTS RECEIVED.

We have received price lists of bees, queens, hives, etc., from the following parties:

A. D. Ellingwood, Milan, N. H.
C. H. Dibbern & Son, Milan, Ill.
A. Hunt, Gordon, Darke Co., O.
C. F. Muth & Son, Cincinnati, O.
F. A. Lockhart & Co., Pattens Mills, N. Y.
D. Kauffman, Needy, Oregon.
F. A. Eaton, Bluffton, Allen Co., O.
J. W. Clark, Clarksburg, Mo.
G. B. & Katie Replogle, Centerville, Ia.
Mrs. A. M. (Taylor) Kneeland, Mulberry Grove, Ill.
W. H. Bright, Mazeppa, Minn.
Oceanside Mill Co., Oceanside, Cal.
H. H. Brown, Light Street, Pa.
E. T. Abbott, St. Joseph, Mo.
W. S. Vandruff, Waynesburg, Pa.
W. W. Bliss, Duarte, Cal.
J. Van Deusen & Sons, Sprout Brook, N. Y.
L. J. Tripp, Kalamazoo, Mich.

We have also just printed price lists for Nimshi Nuzum, of Boothsville, W. Va.; M. D. Johnson, Webster, Ia.; A. L. Swinson, Goldsboro, N. C.; Wm. Hutchison, Benton, Ill.; F. H. & B. H. Dewey, Westfield, Mass.

I WISH TO SELL

my entire stock of Supplies, Bees, and Hives, to one purchaser, or I will sell singly. Apiary, Malden, Mass. Send stamp for particulars.
8-9d S. A. FISHER, 15 Congress St., Boston, Mass.

PURE HONEY & WAX BOUGHT and SOLD.

6-7 8d **HOGE & PHIPPS,**
264 Willoughby Ave., Brooklyn, N. Y.
☞In responding to this advertisement mention GLEANINGS.

300 Swarms of Bees for Sale.

1000 Queens; **2000** pounds Bees; **500** Nuclei; **2000** Excelsior Hives; holds 8 Simplicity frames; **100,000** One-Piece Sections; **2000** lbs. Comb Foundation, and every thing needed in the bee business, at rock-bottom prices. Send for our 8th annual price list of 1890. **R. E. SMITH,**
Tilbury Center, Ont., Can.
☞In responding to this advertisement mention GLEANINGS.

THE BRIGHTEST

Five-banded, golden Italian Bees and Queens, and the **Reddest Drones.** Very gentle; very prolific; good honey-gatherers—working on red clover—and the **Most Beautiful** bees in existence! Took 1st premium at Michigan State Fair, in 1889. Reference, as to purity of stock, Editor of *Review*. Sample of bees, five cents. Untested queens, before June 15, $1.25; after June 15, $1.00. Tested (3 bands), $2.00; selected, tested (4 bands), $3.00; breeding queens (4 to 5 bands), $5 00. Virgin queens, 50 cts.; 5 for $2.00. Safe arrival and satisfaction guaranteed. **JACOB T. TIMPE,**
8-15db **Grand Ledge, Mich.**
☞In responding to this advertisement mention GLEANINGS.

BEES **SEND** for a free sample copy of the **BEE JOURNAL**—16-page Weekly at **$1** a year—the oldest, largest and cheapest Weekly bee-paper. Address
16tfdb **BEE JOURNAL, Chicago, Ill.**

UNTESTED ITALIAN QUEENS AT $1, and 4-frame nuclei at $3.50, after May 1st. Send in orders now.
4-10db S. J. WAKEFIELD, Autreville, S. C.

MUTH'S HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.
PERFECTION COLD - BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON,*
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

COMB FOUNDATION.

I have just purchased two more foundation-machines of A. I. Root, and am able now to make foundation of all kinds at the lowest price in the world. Send for sample or price, to
8d JACOB WOLLERSKEIM, Kaukauna, Wis.

SEND to E. J. Shay, Thornton, Taylor Co., W. Va., for SIMPLICITY HIVES, *Frames, etc.*, both in the flat and set up. 8d

LOOK HERE, FRIENDS.

If you are in any way in want of choice Italian or Albino bees, and wish to save money, do not fail to write your name and address plainly on a postal, and get my prices for 1890, before purchasing. Address
8d W. J. HILLMAN, GREEN RIVER, VT.

VIRGIN QUEENS.

Pure Virgin queens at 50 cts. each, or 40 cts. each per 100. J. B. LAMONTAGUE, Winter Park, Fla. 8-9-10

Queens Ready to Mail

now, and we guarantee safe arrival in any kind of weather. Italian queens, tested, $2 00; untested, $1 00; 3 untested, $2.75. Send for dozen rates. Two-frame nuclei with untested queen, $2.50; $26.00 per dozen in April. Make money orders payable at Clifton. Send for price list to
COLWICK & COLWICK, Norse, Bosque Co., Texas.
☞In responding to this advertisement mention GLEANINGS.

ITALIANS For pure Italian bees and queens, and directions to Italianize common bees, address F. H. & E. H. DEWEY,
55 Mechanic St., Westfield, Mass.

ITALIAN QUEENS AND BEES!

The very best honey-gatherers. Untested queen, 80c; tested, $1.00; select, $1.50. Bees, $1.25 per lb. Satisfaction guaranteed. Send for price list.
8-10-12d C. M. HICKS, Fairview, Wash. Co., Md.

THREE-FRAME NUCLEI,

with queen, $2 25 each, or two for $4.00. Orders booked now for delivery after May 15. Safe arrival guaranteed. Frames, 12¼x9⅛. H. L. FISHER,
8-9-10d Milford, Kosciusko Co., Ind.
☞In responding to this advertisement mention GLEANINGS.

50 COLONIES OF ITALIAN BEES for sale, in Langstroth hives, at $5.00 per colony.
8-9-10d JOHN GRANT, Batavia, Clermont Co., Ohio.

ITALIAN ❊ QUEENS ❊ FOR ❊ 1890.

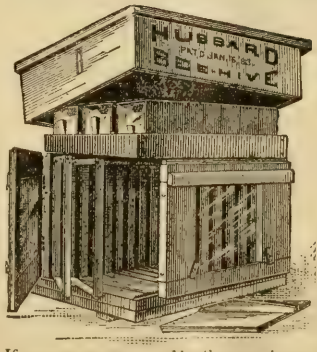
Before you purchase, look to your interest and send for price list. LEININGER BROS.,
8tfdb Douglas, Putnam Co., Ohio.

HOLY-LAND QUEENS A SPECIALTY. Queens at all prices, to suit the times.
GEO. D. RAUDENBUSH,
445 Chestnut St., Reading, Pa.

LET US HAVE FAIR PLAY,

is all we ask. We know you will like our Carniolan bees, because we breed from **Pure Imported Stock.** Queens, $1.00 in June. **Give them a Fair Trial.** Send for printed matter free. Safe arrival. Address **E. L. PRATT,**
8-11db **Pratt Bee-Farm, Marlboro, Mass.**
☞In responding to this advertisement mention GLEANINGS.

FORT WAYNE, IND.



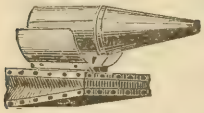
CIRCULARS FREE. ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.
G. K. HUBBARD, 277 S. HARRISON ST., FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.

10c For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied.
☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...$2.00
Conqueror "	3 "	"	... 1.75
Large "	2½ "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow ")	2 "	"	... 1 00
Little Wonder,	1¾ "	"	... 65
Uncapping Knife.....			...1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—ITALIAN BEES & QUEENS at a very low price. Address
6tfdb *OTTO KLEINOW,*
No. 150 Military Ave., Detroit, Mich.

CHOICE ITALIAN QUEENS.

Tested, $1.50. Untested, $1.00. Tested queens reared in the fall of '89, $1 50. These can be mailed at once. MISSES S. & M. BARNES,
7-12db Piketon, Ohio.
☞In responding to this advertisement mention GLEANINGS.

OWING to rising prices of beeswax we now quote an **Advance of 5 cts.** on comb foundation over February prices, both wholesale and retail. **Beeswax Wanted** in any quantity. 6-7 8d
DADANT & SON, Hamilton, Hancock Co., Ill.

H. G. FRAME, NORTH MANCHESTER, INDIANA,
Breeder of Italian and Carniolan Queens. Bees by the pound and nucleus. Price list free.
5tfdb Reference First National Bank.

BEAUTIFUL BEES are always pleasing to the eye.
GOOD QUALITIES are always profitable.

If you want Bees and Queens that combine beauty and good qualities to a *marked degree*, write for circular giving low prices. No circulars sent out unless applied for. **CHAS. D. DUVALL,**
5tfdb **Spencerville, Mont. Co., Md.**
☞In responding to this advertisement mention GLEANINGS.

STRAWBERRY-PLANTS.

A No. 1 plants, true to name, from new ground. Jessie and Bubach, 75c per hundred, $5.00 per thousand. Crescent and Sharpless, 50c per hundred, $3.00 per thousand. By mail, add 20c per hundred for postage. **F. S. McCLELLAND & BRO.,**
6d **Box 379, New Brighton, Pa.**
☞In responding to this advertisement mention GLEANINGS.

The Bee-Keepers' REVIEW

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free. Send for them, and learn how to get the back numbers cheaply.
W. Z. HUTCHINSON, Flint, Mich.

RARE! NOVEL! GOOD! CHEAP!

A meritorious novelty, white as snow, first-rate eating, easily grown and kept, wonderfully productive. *Free catalogue* has fuller description of it, and prices (low) of Novelties and standards in SEEDS and PLANTS, also QUEENS. Send 30c for 5 tubers of STACHYS, as above; a root of the beautiful fragrant CINNAMON VINE, which grows up rapidly each spring; a packet of POWELL'S, the most productive pole bean; of HONEY, a choice sweet corn; of FLOWER SEEDS, over 100 varieties, mixed, and a small tuber of POOTATUCK, a fine new early potato. All postpaid for only 30c. Five collections for $1.00.
CHRISTIAN WECKESSER, Marshallville, O.
Mention this paper. 6-7d

SUPPLIES!

Send for circular—free. WALTER S. POUDER,
175 E. Walnut St., Indianapolis, Ind.
5tfdb (Successor to F. L. Dougherty.)
☞In responding to this advertisement mention GLEANINGS.

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. THOS. G. NEWMAN & SON,
246 East Madison Street, - - CHICAGO, ILLS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
5tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.
☞In responding to this advertisement mention GLEANINGS.

FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks, Address **N. A. KNAPP,**
4tfdb **Rochester, Lorain Co., Ohio.**
☞In responding to this advertisement mention GLEANINGS.

FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.
J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.
☞In responding to this advertisement mention GLEANINGS.

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"VALLEY-FARM APIARY."

Will sell 30 colonies of Hybrid and Italian bees, in Simplicity hives. To be shipped early in May, 1890. Many of the queens were bred from Mr. Doolittle's $4.00 tested queen. Address

G. WIEDERHOLD, YONKERS, N. Y. Opp. Dunwoodie Station.

Please mention this paper.

Queens Ready to Mail

now, and we guarantee safe arrival in any kind of weather. Italian queens, tested, $2.00; untested, $1.00; 3 untested, $2.75. Send for dozen rates. Two-frame nuclei with untested queen, $2.50; $26.00 per dozen in April. Make money orders payable at Clifton. Send for price list to 5tfdb

COLWICK & COLWICK, Norse, Bosque Co., Texas.

Please mention this paper.

ITALIANS For pure Italian bees and queens, and directions to Italianize common bees, address F. H. & E. H. DEWEY, 55 Mechanic St., Westfield, Mass.

Please mention this paper

BROWN LEGHORNS STILL AHEAD. EGGS, $1.00 PER 13, $1.50 PER 26. A. F. BRIGHT, Mazeppa, Minn. 7tfdb

☞In responding to this advertisement mention GLEANINGS.

$6.00 Will Buy in 1890,

One of our Best Hives of Italian Bees with Tested Queen, or 5 for $25.00.

In Simplicity or L. 10-frame hives; 250 colonies to draw from. Address 4-9db

JNO. A. THORNTON, LIMA, ADAMS CO., ILLINOIS.

Please mention this paper.

FOR SALE.

A fine lot of spider, or Grayson Lily Bulbs, which I will sell. Small bulbs 25c, large ones 50c. Very beautiful and fragrant, pure white. I also have 40 or 50 stands of mostly Italian bees for sale. Will sell Queens in April. Would exchange bees for registered Jersey heifer. S. G. WOOD,

4-9db BIRMINGHAM, JEFF. CO., ALA.

Please mention this paper.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to 4tfdb

CHAS. DADANT & SON,

HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

THREE-FRAME NUCLEI,

with queen, $2.25 each, or two for $4.00. Orders booked now for delivery after May 15. Safe arrival guaranteed. Frames, 12¼x9½. H. L. FISHER,

8 9-10d Milford, Kosciusko Co., Ind.

☞In responding to this advertisement mention GLEANINGS.

50 COLONIES OF ITALIAN BEES for sale, in Langstroth hives, at $5.00 per colony.

8-9-10d JOHN GRANT, Batavia, Clermont Co., Ohio.

4-FRAME NUCLEI, Tested Queen, Brood, and plenty of Bees, Italians, for $3.50. Imported queens, $4. W. A. SANDERS, Oak Bower, Hart Co., Ga.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,

21-20db NEW LONDON, Waupaca Co., WIS.

☞In responding to this advertisement mention GLEANINGS.

TESTED CARNIOLAN QUEENS, $2.50 each; untested, $1, or 6 for $5. Send for price list of Italian bees and queens, bred in my Nappanee apiary. 8tfdb I. R. GOOD, Vawter Park, Ind.

VIRGIN QUEENS.

Pure Virgin queens at 50 cts. each, or 40 cts. each per 100. J. B. LAMONTAGUE, Winter Park, Fla. 8-9-10

UNTESTED ITALIAN QUEENS AT $1, and 4 frame nuclei at $3.50, after May 1st. Send in orders now.

4-10db S. J. WAKEFIELD, Autreville, S. C.

FOR SALE - - BEES.

Good colonies in shipping-cases, with 9 Langstroth frames. Italians, $4.50. Hybrids, $3.50, delivered at railroad station any time after May 1.

8tfdb MISS MABEL FENN, Tallmadge, Ohio.

☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. NOVELTY CO.,

6tfdb Rock Falls, Illinois.

Please mention this paper.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange a 6 x 9 self-inking press, with type, for a Barnes foot-power circular saw, and a 2-foot telescope, for 4-inch foundation rolls, or offers. L. L. ESENHOWER, Reading, Pa.

WANTED.—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with 5½x9½-in. chase. 3-11d S. A. SHUCK, Liverpool, Ills.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation. 1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange foundation, for beeswax. Sample on application. 5tfdb Avery's Island Apiary, Avery, La.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tfdb OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange one Green's solar wax-extractor, *new*, for an incubator or Italian queens. G. C. HUGHES, 6tfdb Pipestem, West Va.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange Ohio Valley wire and picket fence machines for bees and bee-supplies. Circulars free. JAS. M. MANGOLD & BRO., Moundsville, Marshall Co., W. Va.

WANTED.—To exchange a general-utility hand-cart, good as new. Write for particulars. A. F. BRIGHT, Mazeppa, Minn. 7tfdb

WANTED.—To exchange 15 to 20 colonies of bees, mostly bright Italians, in Heddon 8-frame L. hives, for salable bee-supplies, especially foundation or machinery for the same, or engine. ROB. RIECKEN, 261 W. Fulton St., Grand Rapids, Mich.

WANTED.—To exchange one set buggy harness, worth $10.00, for Langstroth or Simplicity bee-hives. JNO. GRANT, Batavia, Clermont Co., O. 8-9-10d

WANTED.—To exchange fruit-trees, strawberry, red-raspberry plants and sewing-machines, for bees and honey. E. PETERMAN, Waldo, Wis. 8-8d

WANTED.—To exchange comb foundation for beeswax. Samples on application. 8-11db J. P. CONNELL, Hillsboro, Texas.

WANTED.—Hybrid Italian queens; will pay 20 cts. 9tfdb GEO. H. GRACE, Perry, Iowa.

WANTED.—100 black and hybrid queens, 20 cts., for which I will exchange extracted honey at 7 cts. No cross desired, except Italian and black. If you have any to spare, correspond with 8 9d A. J. NORRIS, Cedar Falls, Ia.

WANTED.—To exchange for sections, fdn., honey, or offers, an American fruit-evaporator, No. 2; capacity, 10 to 12 bu. apples per day. For description of evaporator, write to American Mfg. Co., Waynesboro, Pa. O. H. HYATT, 9tfdb Shenandoah, Ia.

WANTED.—To exchange Italian queens for honey-extractor, either new or second hand. 9d H. G. CAMP, Winona, Col. Co., O.

WANTED.—To exchange milk-shake, good as new; cost twenty dollars, for any thing useful in an apiary. J. F. MICHAEL, 9d German, Darke Co., O.

WANTED.—To exchange a 4-in. foundation-mill, good as new, for a 6 in. mill. 9d WILBER G. FISH, Ithaca, N. Y.

WANTED.—A smart boy, 14 to 18 years of age, to work in apiary; some previous experience necessary. W. D. WRIGHT, Altamont, N. Y. 9d

Black and Hybrid Queens For Sale.

Black queens, 3 for one dollar; also a few hybrids. 5tfdb H. FITZ HART, Avery P. O., Iberia Par., La.

WANTED.—Hybrid Italian queens; will pay 20 cts. 9tfdb GEO. H. GRACE, Perry, Iowa.

About 50 queens to mail in May and June; blacks, 25c; mismated Italian and Carniolans, 50c. E. F. QUIGLEY, Unionville, Mo.

Ten or twelve mismated queens; three for $1.00. Send quick before I pinch off their heads. A. L. KILDOW & BRO., Sheffield, Ill.

Two black and 6 fine prolific hybrid queens for sale. Any one sending 25c each, and ready-provisioned cage, can have them in May. T. K. MASSIE, Concord Church, Mercer Co., V. Wa.

Sixteen black queens at 25c each; ready now. W. P. W. DUKE, Nettleborough, Clarke Co., Ala.

Forty black and hybrid queens at 40c each. W. STYAN & SON, San Mateo, Cal.

About 20 hybrid queens from pure mothers, at 40 cts. each. Purchasers need not send money until they receive the queens, as my stock might be exhausted. B F. CATHEY, Cabot, Lonoke Co., Ark.

Can furnish good hybrid queens from first-class stock the entire season, for 50c each. Also have 4 black queens, will ship for $1.00, or 35c each. J. C. KING, Fort Deposit, Lowndes Co., Ala.

30 COLONIES BEES FOR SALE

In new 8-frame L. hives, at **$3.00** per colony.

H. C. GILSON, - BURR OAK, - MICHIGAN.

In writing advertisers please mention this paper.

THE BRIGHTEST

Five-banded, golden Italian Bees and Queens, and the **Reddest Drones.** Very gentle; very prolific; good honey-gatherers—working on red clover—and the **Most Beautiful** bees in existence! Took 1st premium at Michigan State Fair, in 1889. Reference, as to purity of stock, Editor of *Review*. Sample of bees, five cents. Untested queens, before June 15, $1.25; after June 15, $1.00. Tested (3 bands), $2.00; selected, tested (4 bands), $3.00; breeding queens (4 to 5 bands), $5.00. Virgin queens, 50 cts.; 5 for $2.00. Safe arrival and satisfaction guaranteed. **JACOB T. TIMPE,**
8-15db **Grand Ledge, Mich.**

☞In responding to this advertisement mention GLEANINGS.

LET US HAVE FAIR PLAY,

is all we ask. We know you will like our Carniolan bees, because we breed from **Pure Imported Stock.** Queens, $1.00 in June. **Give them a Fair Trial.** Send for printed matter free. Safe arrival. Address **E. L. PRATT,**
8-11db **Pratt Bee-Farm, Marlboro, Mass.**

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—We have a very few cases of clover in stock. Buckwheat, all sold. Extracted now selling rather slow. Prices unchanged from last quotations C. MCCULLOCH & CO.,
Apr. 21. 339 Broadway, Albany, N. Y.

NEW YORK.—*Honey.*—No change in the honey market. Price low, with little demand. Market pretty well cleaned up.
THURBER, WHYLAND & CO.,
Apr. 19. New York.

DETROIT.—*Honey.*—Comb honey is selling at 10@13; extracted, 7@8. *Beeswax*, firm at 27.
M. H. HUNT,
April 19. Bell Branch, Mich.

ST. LOUIS.—*Honey.*—We quote a quiet market. Choice white-clover. comb, 13@14; dark comb, 9@10; extracted, cans, 6 @ 8; choice bright, in barrels, 5@5½; dark, 4¾@5. Prime *beeswax*, 27.
D. G. TUTT GROCER CO.,
Apr. 21. St. Louis, Mo.

NEW YORK.—*Honey.*—Honey in the comb, all sold. Extracted is in fair demand. We quote: 6@8, according to quality. Southern, 75@80, and Cuban, 78@80 per gallon. *Beeswax* is very scarce; domestic, 26@27; Cuban, light, 28@29. Dark, 25@26.
F. G. STROHMEYER & CO.,
Apr. 18. New York.

BOSTON.—*Honey.*—Market well cleaned up on all fancy one-pound comb honey. Market strong at 16 cts. A little two-pound honey on hand, selling at 15 cts. Extracted, 8 to 9. No *beeswax* on hand. Nothing off grade in any way can be sold here.
BLAKE & RIPLEY,
Apr. 19. 57 Chatham St., Boston, Mass

KANSAS CITY.—*Honey.*—Market cleaned up on comb honey; demand good. We quote white, 1-lb. comb, 14; dark, 1-lb. comb, 10@12; white, 2-lb. comb, 13; dark, 2-lb., 10@11; extracted very slow sale; 5@7. *Beeswax*, none in market.
Apr. 25. CLEMONS, CLOON & CO.,
Cor. Fourth and Walnut Sts., Kansas City, Mo.

SAN FRANCISCO.—*Honey.*—Honey quiet, in anticipation of the new crop. Quote, 5½ @ 6½. Comb honey, 10@14. *Beeswax*, 22@24.
SCHACHT, LEMCKE & STEINER.
Apr. 21. 16 & 18 Drum St., San Francisco, Cal.

FOR SALE—Honey. Good grade. Correspondence solicited. W. A. & E. E. MONTGOMERY,
Pickens, Holmes Co., Miss.

PRICE LISTS RECEIVED.

We have received circulars from the following parties:
J. H. M. McCook, 78 Barclay St., New York.
John Nebel & Son, High Hill, Mo. Printed here.
E. D. Keeney, Arcade, N. Y.
J. I. Parent, Birchton, N. Y.
J. R. Barnhard, Ottawa, Kan.
G. L. Tinker, New Philadelphia, O.
C. P. Bish, Grove City, Pa.
Mark Hurd, Marshall, Mich. Poultry.
T. A. Inghram, Waynesburg, Pa.
Schlichter Bros., Brown City, Mich.
I. D. Lewis & Son, Hiawatha, Kan.
F. A. Salisbury, Geddes, N. Y.

CONVENTION NOTICES.

The Capital Bee-keepers' Association will meet in the Supervisor's Room of the Court-house, Springfield, Ill., May 7, 1890, at 10 A.M. All interested are invited. C. E. YOCUM, Sec'y.

The next annual meeting of the York and Cumberland Bee-keepers' Association will be held in Grange Hall, Buxton Center, May 10. Sessions at 9 A.M. and 2 P.M. An interesting programme is assured. A cordial invitation is extended to all interested. C. W. COSTELLOW, Sec'y.
Waterboro, Me.

The Cortland Union Bee-keepers' Association will hold its annual meeting at the W. C. T. U. rooms, in Cortland, N. Y., on Tuesday, May 13, 1890, at 10 A.M. M. H. FAIRBANKS, Sec'y.

Vegetable and Berry Plants for May.

The demand has been so very good that there is not a thing we are prepared to offer at a bargain unless it is Sharpless strawberries, and we have some of the finest on our creek-bottom ground that I ever saw or heard of; and in order to cut paths we shall have to take out several thousand; therefore if ordered at once we will furnish them at 30 cts. per 100, or $2.50 per 1000. The plants are so exceedingly large and thrifty that the postage will be 30 cts. per 100 instead of 20. We also have several hundred very fine plants of Thompson's Early Prolific raspberries. These are listed at $2 50 a dozen. We will furnish them while they last, for just half the above price. If wanted by mail, add half a cent each additional for postage. Turner and Cuthbert raspberry-plants can be furnished for $1.00 per 100 if ordered within the next 15 days.

P. S.—Also extra-fine seedling celery-plants (not transplanted) $1.50 per 1000. By mail, 15c per 1000 extra. **A. I. ROOT, Medina, O.**

MUTH'S HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.

PERFECTION COLD - BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON, Cincinnati, Ohio.*

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞ *Mention Gleanings.* 1tfdb

APIARY FOR SALE

At $5.00 per colony. Tested Carniolan queens, $1.00 each; tested Italian queens, $1.00. Also R. C. B. Leghorn eggs, $1.00 per 13; prize-winning stock.
Address S. F. REED, N. Dorchester, N. H.

In writing to advertisers please mention this paper.

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS AS AN ADVERTISING MEDIUM.

Just mailed you a postal ordering my ad. in Exchange department stopped. It has brought about a bushel of answers. L. J. TRIPP.
Kalamazoo, Mich., April 12, 1890.

OUR GARDEN SEEDS.

The seeds sent me about 10 days ago came to hand in good condition. Knowing the value of an unsolicited testimonial, I desire to let you know that they were as fine a lot as I have ever seen—in fact, the finest and cheapest too. I have bought seeds from several of the prominent seedsmen of the country during the last ten years, but I have never had seeds come up so quickly nor so regularly. I think I can get many a customer for you here, where market-gardening is so vigorously carried on. JOHN ASPINWALL.
Eau Gallie, Fla., March 23, 1890.

A KIND WORD FOR PROF. COOK.

Prof. Cook:—Perhaps I am taking a great liberty by writing to you; but I have received great benefit from studying your Manual of the Apiary, and have been very successful, so that I raise from nine to twelve thousand pounds of honey per year, and have bought a property with a maple-sugar orchard on it; and seeing your name to a piece in my paper, on the way to manage a sugar-orchard, I thought that you would be the best person to get information from to manage one in the best way. Is there a book published on the subject? or if there is not, would it not be a good idea for you to publish a pamphlet on the subject? GEORGE HARRIS.
Dungannon, Ont., Can., April 12.

The Bristol Hive,

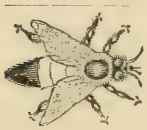
AND ALL KINDS OF BEE-KEEPERS' SUPPLIES MANUFACTURED AT REDUCED PRICES.

The Poplar Four-Piece Sections a Specialty.

PRICE LIST FREE ON APPLICATION.

ADDRESS TO **DRAKE & SMITH,**
9 10d **Bristol, Vermont.**
(Successors to A. E. Manum.)

☞ In responding to this advertisement mention GLEANINGS.



BEES
BEES
BEES

Carniolan queens and bees a specialty. Seven years' experience with those bees satisfies me of their superiority. They are unexcelled in gentleness, hardiness, and prolificness, as comb-builders and honey-gatherers. Write for circular and price list. Address *A. L. LINDLEY,*
Mention Gleanings. *Jordan, Indiana.*

HEDDON'S 1890 CIRCULAR

NOW READY.

ADDRESS

JAMES HEDDON,

DOWAGIAC, MICH.

Please mention GLEANINGS. 9 10d

Carniolan * Bees.

PLEASANTEST BEES IN THE WORLD.
BEST HONEY-GATHERERS.
HARDIEST TO WINTER.

IN ORDER TO INTRODUCE NOT ONLY THE BEES, BUT OUR PAPER,

"THE ADVANCE,"

We offer to any one who will send us $1 25, a copy of our paper and a nice Carniolan queen. The queen alone is worth $2 00. Address

THE ADVANCE, Mechanic Falls, Me.

Please mention GLEANINGS. 9-11-13d

Rheumatism * Bees.

No doubt the best bees for curing rheumatism are pure-bred Italians that prove to be good workers and work on red clover.

We have such if you want good stock to work with and to secure you plenty of honey.

Tested queens in May, - $1 50; in June, - $1 25
Unt'd " " " - - 1.00; 3 for - - 2 50
" " " June, - 75; 3 for - 2 00

For wholesale prices, nuclei, lbs. of bees, and all kinds of bee-supplies, write for our 16 p. circular.

9tfdb **JNO. NEBEL & SON, High Hill, Mo.**

Mention this paper.

J. W. K. SHAW & CO.,

LOREAUVILLE, IBERIA PARISH, LOUISIANA.

Tested Queens, imported mothers, fall rearing, light, Milamo strain. Reared in full colonies, at $1.50 each. Untested, in May, $1.00 each. All drone bees are from imported queens. Money orders on New Iberia, La. 9d

Please mention this paper.

A BARGAIN. I will mail you a tuber of the beautiful fragrant **Cinnamon Vine,** which grows up rapidly, and early covers an arbor or trellis; a pkt. of *Powell's,* the most productive and excellent pole bean ever introduced; of Honey Sweet Corn; and 10 eyes of either Foraker or Fearnaught (choice new) potatoes, **all for only 15c.** This liberal offer because of a surplus, and as an inducement for a trial order, entitling you to free catalog. Order at once, and I will send an extra pkt. Show this offer. Ten collections for $1.25

CHRISTIAN WECKESSER, Marshallville, Ohio.

9d Please mention this paper.

HEADQUARTERS IN THE SOUTH.

FACTORY OF BEE-HIVES, ETC.

From now on I will sell my 4-frame nuclei, with Italian queen, at $3.75. In lots of 5, at $3 50 each. Untested queens, at $9.00 per dozen in June; $8.00 per dozen in July. Satisfaction and safe arrival guaranteed. Twelfth annual catalogue.

9tfdb **P. L. VIALLON, Bayou Goula, La.**

Please mention this paper.

Carniolan Queens.

Send for Descriptive Circular to

DR. S. W. MORRISON, Oxford, Pa.

9tfdb Please mention this paper.

STOUT'S AUTOMATIC SWARM CONTROLLER

Price **60c.** For particulars, send for circular.
LEMUEL STOUT, 1215 Market St., Philadelphia.

9-10d Please mention this paper.

E. W. PITZER, Hillsdale, Iowa,

Has the finest of Bronze Turkey eggs for sale at $2 00 per 10. Langshan and P. Rock eggs at $1 50 per 15. Stock unexcelled. Safe arrival guaranteed.

9 10d Please mention this paper.

TESTED ITALIAN QUEENS

NOW READY AT $1. each; untested, 75 cts.; ready by return mail. Bees by the pound, 75c. Also nuclei. See GLEANINGS, March and April. Discount to dealers

LUTHER W. GRAY, Orlando, Fla.

9tfdb Please mention this paper.

Bee-Keepers' Supplies.

WHY * SEND * LONG * DISTANCES?

SEND NAME ON POSTAL CARD FOR MY NEW PRICE LIST TO

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.

Formerly of St. Joe Sta., Butler Co., Pa.
ESTABLISHED IN 1884. 9tfdb

Please mention this paper.

The Georgia Bee & Honey Co.

Has 100 colonies of Italian bees for sale. $3.50 each, or $3 00 taking the lot. Queens included.

Address W. A. PROFFITT, Hartwell, Hart Co., Ga.

Please mention this paper.

FOR SALE.—1 dozen tested Italian queens over from 1889. Each, $1.25; six, $7.00; 1 doz., $12.00.

9d S. P. RODDY, Mechanicstown, Md.

BEST ON EARTH

ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...$2.00
Conqueror "	3 "	"	... 1.75
Large "	2½ "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow ")	2 "	"	... 1 00
Little Wonder,	1¾ "	"	... 65
Uncapping Knife.....			..1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—ITALIAN BEES & QUEENS at a very low price. Address
6tfdb *OTTO KLEINOW,*
No. 150 Military Ave., Detroit, Mich.

☞In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS.

Tested, $1.50. Untested, $1.00. Tested queens reared in the fall of '89, $1.50. These can be mailed at once. MISSES S. & M. BARNES,
7-12db Piketon, Ohio.

☞In responding to this advertisement mention GLEANINGS.

H. G. FRAME, NORTH MANCHESTER, INDIANA,
Breeder of Italian and Carniolan Queens. Bees by the pound and nucleus. Price list free.
5tfdb Reference First National Bank.

☞In responding to this advertisement mention GLEANINGS.

BEAUTIFUL BEES are always pleasing to the eye.
GOOD QUALITIES are always profitable.

If you want Bees and Queens that combine beauty and good qualities to a *marked degree*, write for circular giving low prices. No circulars sent out unless applied for. **CHAS. D. DUVALL,**
5tfdb **Spencerville, Mont. Co., Md.**

☞In responding to this advertisement mention GLEANINGS.

I WISH TO SELL

my entire stock of Supplies, Bees, and Hives, to one purchaser, or I will sell singly. Apiary, Malden, Mass. Send stamp for particulars.
8 9d S. A. FISHER, 15 Congress St., Boston, Mass.

☞In responding to this advertisement mention GLEANINGS.

EGGS.

Pure Spangled Wyandottes, 13 for 75 cts. I will tell HOW TO PLATE KNIVES, for $1.00, or eggs and plating for $1.50. MRS. SAM'L JACK,
8d Richmond Center, Ashtabula Co., Ohio.

☞In responding to this advertisement mention GLEANINGS.

Look Here! Supplies Cheap

Italian and Albino Queens and Bees; Chaff and Simplicity and Nonpareil Hives. Extractors, Smokers, Foundation, Surplus Section Boxes, Root's Perforated Zinc. Price List Free. Write for One.
A. A. BYARD, WEST CHESTERFIELD, CHESHIRE CO., N. H.

☞In responding to this advertisement mention GLEANINGS.

EGGS! PURE BRED P. ROCK, LT. BRAHMA, W. & L. WYANDOTTE, and BLK. MINORCAS, $1 FOR 13; $1.75 FOR 26. 7-8-9d J. D. BRANDS, P. M., Warrington, N. J.

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125 COLONIES ITALIAN BEES AT BOTTOM PRICES. A. F. BRIGHT, Mazeppa, Minn.
7tfdb

1890 ITALIAN QUEENS IN MAY, FROM BEES BRED FOR BUSINESS. Each, $1.00. Six, $4.50. Order now, pay when queens arrive.
7d W. H. LAWS, Lavaca, Sebastian Co., Ark.

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the **best** Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3.50 per 1000.

☞ Parties wanting more should write for special prices. No. 2 sections, $2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

☞In responding to this advertisement mention GLEANINGS.

BARRED PLYMOUTH ROCK EGGS, $1.00 per 13. L. C. AXTELL, Roseville, Ill. 8tfdb

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1890 ITALIAN QUEENS. 1890

Six young queens, warranted purely mated, for $5.00. English rabbits, $1.00 per pair. Mammoth bronze turkey eggs, 25c each; 9 for $2.00. Send for circular. 7tfd J. T. WILSON,
Mention this paper. Little Hickman, Ky.

SUPPLIES!

Send for circular—free. **WALTER S. POUDER,**
175 E. Walnut St., Indianapolis, Ind.
5tfdb (Successor to F. L. Dougherty.)

☞In responding to this advertisement mention GLEANINGS.

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. THOS. G. NEWMAN & SON,
246 East Madison Street, - - CHICAGO, ILLS.

☞In responding to this advertisement mention GLEANINGS.

FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks, Address **N. A. KNAPP,**
4tfdb **Rochester, Lorain Co., Ohio.**

☞In responding to this advertisement mention GLEANINGS.

COMB FOUNDATION.

I have just purchased two more foundation-machines of A. I. Root, and am able now to make foundation of all kinds at the lowest price in the world. Send for sample or price, to
8d JACOB WOLLERSKEIM, Kaukauna, Wis.

☞In responding to this advertisement mention GLEANINGS.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.
J. STAUFFER & SONS,
16tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

☞In responding to this advertisement mention GLEANINGS.

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

9tfdb OLIVER HOOVER & CO.,
Mention this paper. Snydertown, Pa.

LOST! The old prices on Bee-Hives, and new ones found. Send for circular—FREE.
L. J. TRIPP, Kalamazoo, Mich.
9tfdb Please mention this paper.

Italian Bees and Queens.

Tested queens, $1.50; untested, $1.00. Bees, per lb., $1.00. Frame of brood, 50c; 3-frame nucleus, containing 2½ lbs. bees, 2 L. frames of brood, and tested queen, $4.50. Queens reared from imported mothers. Send for price list.
MRS. A. M. KNEELAND (*nee* Taylor),
9-10d Box 77, Mulberry Grove, Bond Co., Ill.
Please mention this paper.

PURE HOME-GROWN

GERMAN MILLET SEED.

Sacks included at $1.10 per bushel. All kinds of Bee Supplies on hand. *T. A. GUNN,*
Mention this paper. *Tullahoma, Tenn.*

SEND to E. J. Shay, Thornton, Taylor Co., W. Va., for SIMPLICITY HIVES, *Frames, etc.*, both in the flat and set up. 8d

50 COLONIES OF ITALIAN and HYBRID BEES for sale at $3 50 per colony, in shipping-boxes, L. frames. Also eggs from W. Wyandottes, W. Minorcas, and Pekin Ducks. Eggs, $1.00 per 13.
9-10-11d M. H. FAIRBANKS, Homer, N. Y.
Please mention this paper.

FOR SALE -- ENGINE and BOILER.

A five-horse-power upright engine and boiler, with both injector and pump, whistle, blower, glass oilers, and every part complete, in perfect working order, and nearly new; cost $285.00, will sell for $150.00. A. C. FASSETT, Watson, Mich.
Please mention this paper.

PLYMOUTH ROCKS, White and S. Laced Wyandotte eggs, $1.00 per setting, in exchange for foundation, sections, Jap. buckwheat, or offers.
T. G. ASHMEAD, Williamson, N. Y.
In writing advertisers please mention this paper.

LOOK! Italian Queens, 20c to $1.
Tested, $1; untested, 50c; virgins, 20c
Safely delivered by F. C. MORROW, Wallaceburg, Ark.
Please mention this paper.

Japanese Buckwheat. See G. B. Talcott's adv't in GLEANINGS, April 1.

That Hundred-Dollar Queen.

$1 will purchase a daughter of this wonderful queen. Descriptive circular free. Address
9tfdb AM. APICULTURIST, Wenham, Mass.
Please mention this paper.

TESTED ITALIAN QUEENS, $2. Untested, from imported mother, $1. Bees, per lb., $1.00. Hybrids, 70c. Nuclei, 35c per frame. Address
9d J. J. HARDY, Lavonia, Ga.

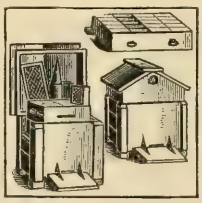
ITALIAN QUEENS FOR 1890.

Tested, $1.00; untested, 75c. White Mallard Duck eggs, 75c per doz. Brown S. C. Leghorn eggs, 75c per 13. C. C. KIRKMAN,
9d Redallia, Pitt Co., N. C.
Please mention this paper.

CHENANGO VALLEY APIARY.

Please give me your orders, and try my fine yellow Italian queens; are from imported stock, well known to my customers. Send for circular

Two-frame nucleus, with queen, in June, $2. Tested queen, $1.50; untested, $1.00. 8tfdb
MRS. OLIVER COLE,
Sherburne, Che. Co., N.Y.
☞In responding to this advertisement mention GLEANINGS.



HILTON'S
Improved Chaff Hive
AND T SUPER.
The pamphlet: "How I Produce Comb Honey." Price 5 cts. Send for free illustrated price list of everything needed in the apiary.
CEO. E. HILTON.
5-10db Fremont, Mich.
☞In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete stock of Apiarian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db
R. B. LEAHY & CO., Higginsville, Mo.
☞In responding to this advertisement mention GLEANINGS.

SECTIONS, $3 PER 1000.
Foundation, Alsike clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our FREE PRICE LIST. M. H. HUNT, Bell Branch, Mich.
Please mention GLEANINGS. 1tfdb

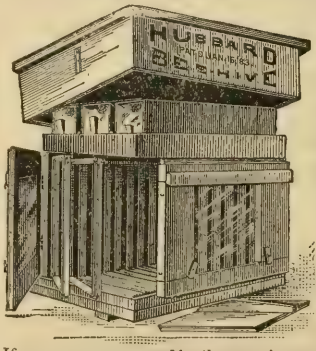
Eaton's Improved
SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
2-13db Bluffton, Ohio.
☞In responding to this advertisement mention GLEANINGS.

THE CANADIAN

Bee Journal	Poultry Journal
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	75c. Per Year.

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.
The D. A. Jones Co., Ld., Beeton, Ont.
☞Please mention GLEANINGS. 6-11db

FORT WAYNE, IND.



CIRCULARS FREE.
ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.
G. K. HUBBARD,
277 S. HARRISON ST.,
FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.
VERY CONVENIENT. AGENTS WANTED.
10c For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied
Please mention GLEANINGS. 8-13db

Vol. XVIII. **MAY 1, 1890.** **No. 9.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

FASTENING HIVES TOGETHER FOR HAULING.

SOMETHING VALUABLE FROM J. A. GREEN.

I HAVE tried the plan given by Ernest, and I must say it is cheap, simple, and, for the time, effective. But two objections present themselves to my mind —one of them a very serious one. First, when used over a wire-cloth screen it will not permit of the cover being put on so as to make the top of the hive tight. With my method, the hives can be fastened together a week in advance, if necessary, all ready to start as soon as the entrances are closed.

Second, if you have your hives fastened up over night ready for an early start in the morning, and it rains during the night, your fastenings are unreliable until they have been dried. Or suppose, while you are on the way with a load of bees, a smart shower comes up, followed by bright sunshine. Your twine fastenings will begin to loosen as soon as the rain is over, and will continue to stretch and loosen until they are perfectly dry, when you will find that the cover can be lifted half an inch from the hive before they will tighten. In other words, they would be no fastening at all unless you tightened them every few minutes until dry. You think my nail-heads will not stand the strain. Well, now, prepare a hive as I direct; and if the nail-heads (8*d* common, wire) will not stand twice the strain that your twine loops will, I will take back all I have said against your method.

SHIPPING-CASES, AND SHIPPING COMB HONEY.

There was a time when nearly all comb honey was shipped in large cases, weighing 40 lbs. or more, the sections being usually two tiers high. Leaving out of the question, for the present, the matter of size, such cases had serious defects. In the first place they were so nearly square that inexperienced persons in handling them often placed them so that the combs ran horizontally instead of vertically. Usually this was due to carelessness; but I have known it to be done purposely, from the belief that that was the proper way.

In time, our cases were cut down to one tier high, and then we were told that another reduction in size was advisable, and the case holding a dozen sections appeared. This captured the bee-keeper's heart, so that, in some of our markets, this size of case leads all others. Its real advantages combined with its novelty to give it a run that I think it hardly deserves. After shipping a great deal of honey in these cases I concluded that their advantages had been over-estimated. All the commission men I talked with agreed with me that they were too small. Few persons ever buy that much honey at one time for their own eating, and those that do will take a larger case just about as readily. Many dealers buy only one case of honey at a time. They want to "just try it to see how it goes," or, they "don't want too much on hand at one time," but they will take a 20-lb. case just as readily as a 10-lb., especially if the latter is not in sight. When that is gone, perhaps they will get another at once; but more often they will wait awhile, and perhaps put it off altogether. In the aggregate this means that a great deal less honey is disposed of than would be otherwise.

When honey in these cases was broken (and few cases of honey ever reach the consumer's hands without more or less breakage and leakage), the honey from the upper tier ran down over the lower sections, thereby injuring them greatly. I have met merchants who declared they would never handle another pound of honey, because it was always a dauby, sticky mess. Unless the sections fit-

ted tightly in the case, the upper tier had altogether too much freedom of motion.

I do not believe that the 10-lb. case will ship as safely, on an average, as one a little heavier. I always help the railroad men load my honey, and I notice that they always take two and often three and four of these small cases at a load, where they have to carry them. Of course, they are more liable to drop one of them than if they had only one or two larger ones. Judging from what I have seen of other goods, I believe freight-handlers often "form a line" and toss these small packages from one to another. This is the most expeditious way of handling light articles, when circumstances admit of it, and they become very expert at it, seldom dropping any thing; but it is not necessary for a case of honey to fall to the ground to break the combs. These small cases are much more liable to be loaded in a tall pile, which will topple over from the repeated bumping of a freight train. Of course, when they are properly loaded and unloaded by men accustomed to handling honey, these objections disappear.

I have found it an advantage in shipping these small cases to fasten two or three of them together by nailing strips across the sides. This makes a package that is not likely to be loaded any way but right side up. It is not too heavy for one to handle safely, but it is too heavy for two to be handled easily.

But the style of packing that gives the best results, suits my customers best, and calls down the praises of the railroad men, is a crate made to hold eight of the 10-lb. cases. This is made with skeleton sides and ends, with projecting handles to carry it by, and is deep enough to allow an inch and a half of hay, leaves, excelsior, or other elastic packing material, under the cases. I have shipped a great deal of honey crated in this way the past winter, and I have not heard of a single broken comb. Instead, the consignees have nearly always mentioned the perfect order in which the honey was received.

Not the least of the advantages of this method is, that the cases are not soiled in shipment. In these days, when appearance counts for so much, this is a big item. Most of my comb honey the past season was sold to bee-keepers who had none of their own, or not enough to supply their trade. Of course they didn't want to sell honey that had evidently taken a railroad journey (!), so they appreciated the advantages of this style of packing.

These crates add something to the cost of the honey; but where it is to be shipped in small lots, or loaded or unloaded by men not accustomed to handling honey, I believe they pay well.

In shipping comb honey it is very important that the combs run parallel with the rails, as on a railroad the jar is all endwise; while in hauling on a wagon they should run crosswise of the wagon, as in that case it is the rocking, sidewise motion that is to be guarded against.

I now use, on all shipments of comb honey, caution labels, a sample of which I inclose. Very many, I know, will not pay much attention to such things; but if the warning is printed in large bold type, brief and pointed, so as to be easily read and comprehended, most persons will read and follow it.

Dayton, Ill., Apr. 10. J. A. GREEN.

Thanks for your suggestion, friend Green, in regard to the cord method of fastening hives; but it seems to me your objections are not so very serious after all. 1. We have no trouble about fastening the wire screens down, and I hardly see why you should. 2. In regard to the loops stretching under the influence of the weather, what you say may be true with *ordinary* cords. But if you use *tarred* twine, the stretching you speak of can not very well take place. I spoke of the jute twine because we had used it and liked it very well. We have also used the tarred twine, and in practical use I saw but little difference in favor of either, except that the jute is larger, and I thought it stronger, and hence better to recommend to readers in general. But from what you say, I should *now* say, use the tarred twine. I should still prefer the loop method, even if the cords would stretch. There is less toggery, no nails to catch clothing, and a ball of twine is the whole expense. If I could not readily obtain the tarred article, and found by experience that ordinary twine would be affected by rain or dew in the night, I would not put them on until the morning. Half an hour would securely fasten 50 colonies if the twines were cut the proper lengths previously; and if I desired to make an early start, as soon as I got up I would give the horse his oats; and while he is eating I would fasten on the twines; my breakfast I would eat on the road. Yes, sir, I think your method of fastening is good; and perhaps better than what we used; but then I thought the loop method I described was more available to most bee-keepers. E. R.

We are exceedingly obliged to you for your hints in regard to shipping honey. It seems to us that this is one of the vital matters connected with our business. I have been slowly coming to the conclusion that we want our honey in small packages, and, furthermore, that these small packages should be crated in one large package. This prevents the tumbling-over trouble, and keeps them clean, and facilitates handling, without soiling or damage, at least to a great extent. I wish you would give a photograph or sketch one of these eight 10-lb. cases. We give to our readers below a reduced copy of friend Green's caution label.

FRAGILE.
HANDLE WITH CARE.
☞
LOAD WITH HAND POINTING TOWARD END OF CAR OR SIDE OF WAGON.
From J. A. Green,
Dayton, Ill.

HOW TO PUT IN STARTERS.

A SEASONABLE ARTICLE FROM DR. C. C. MILLER.

If you have only a few sections to fill with starters, it matters not a great deal how it is done. When you come to have so many that it makes several days' work, then it does matter, for some ways will take twice as long as others. I am not competent to say what is the best way, but I know the Clark fastener, if rightly used, is good, and I know it can be used so as to be a very poor affair. I feel very confident that many who are using other plans, if they should try the Clark in the right way, would find themselves greatly the gainers to change to the Clark.

In order to make this article practical I have brought pen and paper over to the shop, to write as I watch the work in the hands of the assistant who has always had that particular work for her specialty. In the first place the fastener must be firmly fastened to the table, so there will be no *give* when working. One way is to screw the fastener to a board long enough to reach clear across the table, and then clamp the board on the table. The clamps are then easily put on or taken off at any time. A board a foot wide and 18 or 20 inches long is screwed or nailed on top of the fastener, as near to the operator as may be, without interfering with the working of the lever. This board will need to be renewed perhaps every year, for on it are placed the hot bricks to warm the foundation, and the board is occasionally burned. I see Emma has her brick resting on a fire-shovel so as to burn the board less. On the end of the board nearest the operator are placed the starters in two piles. I use top starters 3¼ inches, and bottom starters ¾ inch. If only one starter is put in each section, then one pile of foundation will be enough, and a narrower board will answer. The starters are placed on the end of the board nearest the operator, and the brick beyond. The edges of the starters nearest the brick are evenly placed in the piles so as to receive the heat alike. The edges of the starters should be heated till quite soft. Indeed, it hardly matters how soft the edge is, so it is not actually melted. Only one edge of the starter should be warmed. Not only does it do no good, but it does harm to warm the whole of the starter. Therefore the instruction to lay the foundation in the sun or on some warm surface is decidedly bad.

Thirty to fifty starters are put in a pile; and when all but perhaps ten of these are used up, a fresh pile is put *under* this ten, to be warmed by the time they are wanted. Some care must be taken that the foundation be not melted. If it gets too warm it must be moved back from the brick or else the brick moved further from the foundation. I use two fire-bricks, one to be heating in the stove while the other is being used. They do not last very long, and soapstone might do better. Still better might be some arrangement heated by a lamp so as to keep a steady heat all the time. The heat of the brick is constantly changing, and the operator must get up every now and then to change bricks.

Before being ready for work, something must be had to moisten the edge of the presser block, or else the foundation will stick to it. A small paint-brush will do, but it takes more time, is more troublesome, and does not do as good work as an implement specially made, as follows: Take a piece of wood about 9 inches long, 1¾ inches wide, and ¼ thick. Nail on one end of it a pad or cushion made of old cotton cloth—perhaps woolen is just as good. Fold the cloth into several thicknesses, making it about 5 inches long and nearly ¼ inch thick. Use few nails. Now whittle the handle end a little narrower, and your paddle is done. Have a bowl or other vessel filled with *salt* water—starch water will do, but I think salt is better—and in this bowl dip your paddle till the pad is well soaked. Place the paddle under the presser-tongue till the tongue is well wet, and it may be well to let it stay in that position after the day's work is done, till ready for the next day's work. At the left of the operator's seat stands a box 16 or 18 inches high, on which is placed a board of sections. The board for holding these sections should be as light as may be to have sufficient strength. I use some discarded queen-excluders, which answer very nicely, being $\frac{5}{16}$ thick, and having no greater thickness at the rims, and, what is of some consequence, being 17 inches wide, so as to hold four sections across. The sections on this board are four tiers high, making 136 sections on the board. One tier is placed on another, on the break-joint principle, so as to be more secure from falling. On the floor, or a little elevated, at the operator's right, stands one or several supers filled with starters, 500 of each kind in a super. On the table, at her right, is placed a board to hold the sections as fast as they are filled with starters. It is well to have a little projection fastened to the table at this point, so the board may stand well forward without falling off the table. The height of the seat depends on the height of the table and the height of the operator. My table is of such height that the upper surface of the fastener on which the section is placed is about 30 inches from the floor. A common chair, about 16¾ inches high, is just right for Emma, who is rather short. Although I am only about two inches taller, the seat is too low for me to use more than one foot comfortably. Now, remember this: To do good work, and do it easily, *you must keep both feet on the treadle.* So long as Emma sits on the seat, she never takes either foot off the treadle, even if she stops work for several minutes, simply because it is entirely comfortable to keep both feet on. If you feel inclined at all to use only one foot, you may be sure that your seat should be made higher, or some other change made.

Putting in a shallow starter is a *little* different from putting in a deep one. As I use both (¾ and 3¼) I will describe each.

First, the bottom, or shallow starter. The section is placed on the machine, and pushed against two ¾-inch wire nails, one on each side, driven in all but ¼ inch of their length. These nails, used as stops, must be placed differently for sections of different width, and must by careful trial be placed just where they will allow the foundation to be put in the middle of the section. With the right hand, get one of the little starters and place it with both hands so that the presser will take a very small bite. Now give the feet a single swing forward—perhaps you might call it a kick—and let the feet *instantly* rebound to their position of rest. *Don't* try to hold the presser tight down till you straighten up the foundation. You will do that just as well, and a good deal easier, by letting the feet rest at ease. With a thumb at each side, push the foundation upright. You will now see the need of having the foundation cold, all but one edge. If all were soft you couldn't straighten it upright with a single push of the thumbs. Now turn the section over and get a top or large starter. Hold the starter in place with both hands, give a kick, and let the feet instantly come back to repose. The starter was held in place by the thumb and fingers of each hand, and the third and fourth fingers of each hand continue to support the starter till the section is turned over and the starter is pushed into its place. Although the weight of the starter itself might bring it to the right position, it is just as easy to let it rest on the fingers and make a sure thing of it. The right hand places the sections in nice order on the board, ready to be picked up four at a time

when put in the super. Just as soon as you find the least inclination of the starter to stick to the fastener at one little spot, before you take up another section take the paddle from where it is lying in your lap; lay it under the presser as you do a section; give a single kick, and then return the paddle to your lap. It may be you will put in 20 starters, and it may be not more than 4, before you will again need the paddle.

If you find that the presser cuts so nearly through the foundation that you are afraid the starter may fall out, it is probable the edge of the presser is too sharp. Sandpaper it enough to make it dull, or a trifle rounding.

How fast can this work be done? I have tried it just now, and I can put in four starters in a minute. With practice I think I could do better; but this is the first I have tried it, I think, for three or four years, and I never had much practice. Now I'll time Emma. She puts in 14 starters in a minute, and it looks easier when she does it than when I do it. She has had much practice. But she can't keep up that speed all day. The other day she put in 4400 starters (2200 sections) in a day, working, I think, about 9 hours. That makes an average of a little more than 8 a minute; but in her time was included changing her bricks and boards, and other necessary changes. She could not have done so well if the sections had been thrown pellmell into a basket, but the sections were neatly placed on a board, all right side up.

The character of the work is the very best. Just now I picked up a section at random, and pulled out both starters. Instead of pulling loose from the wood, both starters broke apart, leaving wax attached to the wood. C. C. MILLER.

Marengo, Ill.

There, old friend, you have told us exactly what we all wanted to know. I do not mean by this that you have given us a better plan than anybody else has, or that we shall all decide to follow it; but you have told us how one of the "big guns" manages in preparing his sections so as to have them in readiness to be placed on the hives, not only in the home apiary, but in the out-apiaries as well. It does seem too bad, as you say, to be obliged to bother with bricks; but, my dear friend, why not put a lamp under the table so as to have the top of the chimney about a couple of inches below the brick, and thus keep the brick itself at a uniform temperature? Your idea of a little tool for moistening the foundation-fastener is tip-top. I like your remarks in regard to having your work handy. Why, it really makes me feel cross toward the whole human family when I see how people waste time, and especially when time is valuable. Just one simple illustration: It is potato-planting time just now, and almost everybody cuts potatoes in pieces more or less when planting. Well, just watch the way people go about it. I have tried a good many men, boys, and women. If you give them a knife and a barrel of potatoes, without any further directions, a good many will stoop over and reach into the barrel, and pick up one potato at a time. They will cut it in two leisurely, and then stoop over again, and deposit the pieces into a basket. Perhaps they will turn around and walk three or four feet to the basket, and perhaps keep right on doing so. Just at this point, however, if I am around you will hear some scolding. Setting the basket close to the side of the barrel is an improvement. Putting the basket on top of a box or stool, so as to bring it level with the top of the barrel, is a still greater improvement; and this does very well when the barrel is nearly full of potatoes. Now, there is a difference of opinion in regard to sitting down or standing up at your work; but *I* am in favor of having the average man or woman sit down at any work such as cutting potatoes. I have seen men and women pretty well tired out, who did not seem to have sense enough to sit down, even when an opportunity offered. Some say they can work faster standing up than when sitting down. Well, there is some truth in this; but it will depend much on circumstances. I will now tell you how I direct in regard to cutting up potatoes. After you get about a third of the contents of the barrel out, tip it on its side and set it on a box, basket, or something to lift it up pretty high. Put your basket to hold the cut ones so that, as you pitch the potatoes forward, they will drop into this basket; but by all means have a box, barrel, or suitable seat of the right height so you can work rapidly and comfortably. Now, putting starters into sections, and all other little work of this kind, comes under the same regulations.

Fix things before you commence, so that you will not have to travel needlessly yourself, and then economize every inch of space possible that your hands must travel over in doing the work. Yesterday the weather was just right, and the ground was just right to start planting our Puritan potatoes. The tools and potatoes were put into the wagon. Three boys and a man were on hand, ready to drop. I started them to the field while I went to see to something in the office. Ten minutes later I found the horse, two men, and three boys, all standing still because somebody had borrowed our one-horse plow and broken the point off, and had gone away without saying any thing to any one about it. One of the men proceeded to get the rusty bolt from the plow. When I got around I set one of the boys to cutting potatoes, two others to sweeping the tool-house; then I found the man was turning the bolt the wrong way. He did not know that bolts to hold plow-points are made with a left-handed screw. He did not know, either, that some oil from the can right near him would make the bolt come out without twisting off the thread. In a few minutes I had the five all busily at work, and in two hours a quarter of an acre of potatoes was put in the ground nicely. If I had not been with them, working with brain and muscle, it would have taken them, very likely, until noon. The tool-house would not have been slicked up so it was a thing of beauty (if *not* a joy for *ever*), and I believe that all hands enjoyed making the work fly—the smart horse we had to help us, as well as the boys. A few minutes ago I saw a paper in the office, from the Secretary of Agriculture. This paper

considers one of the great issues before us just now—what shall be done for the average farmer to enable him to *make a living?* My suggestion would be this: He must use his *brains* in such a way as to enable him to do in one hour what ordinarily takes three or four hours. Here is a farmer who gets his team all ready for work in the field, and then lets the team and several hands stand still and wait, while he puts a point on his plow! Why, he ought to be ashamed of himself. (I really *am* ashamed of *myself*). The plows and every thing else should be in apple-pie order long before the busy season commences. I presume that that plow of mine stood in the tool-shed without any point all winter—yes, while there have been months of bad weather when we hunted around for work for the different ones to do. What has all this to do with putting starters into sections? Why, it has a good deal to do with it. Use your brains; work intelligently; sit up straight; look happy, and enjoy being just what God meant you to be —"boss of the universe." I was going to say, "lord of creation;" but then some of you may think that I meant only the men-folks; but I tell you, there are lots of womenkind who can boss bee-keeping, and farming too, as well as we men can do it; and there is a bright, smart little woman over at our house that is just one of that sort. I think Dr. Miller knows one or two such in *his* neighborhood. How is it, old friend?

QUEENS; HOW MANY EGGS DO THEY LAY?

HOW MANY BEES ARE THERE IN A COLONY? ETC.

In one of our leading bee-papers I find the following sentences: "The proper thing for the bee-keeper to do, in order to keep his apiary in good condition, is to renew his queens as often as once in two years." "A queen, whose egg-producing capacity is limited to 200,000 eggs, will, if furnished the proper amount of breeding-room, deposit more than one-half of those eggs between May 1st and October 1st." "I know from actual experience that the best of any queen can be realized in the first eighteen months of her life." "I do not believe that one queen in 10,000 would be worth keeping the third year." In another paper I find these words: "A *good, prolific* queen, say one that will lay one hundred thousand eggs in a year, will play out in two years." Now, I am at a loss to know the object of thus writing, and fail to see any good reason why some of our best apiarists are recommending the supersedure of all queens the second year. It seems to me that they have been and are making a mistake, and one that will work damage to those who are novices in the business. From such assertions as the above, the idea seems to be gaining ground that it is an actual necessity to supersede all queens after the honey harvest of the second year. As a queen-breeder I suppose that it would be policy for me to push ahead this idea, instead of opposing it; for the oftener queens are superseded, the better the chances for the queen-breeder to dispose of his product. But as I do nothing from policy, believing in "the greatest good to the greatest number," I wish to go on record as saying that *good prolific queens* do not need superseding in their second year, and that, instead of the queen's capacity being limited to 200,000 eggs, she is capable of laying more than three times that amount during her existence. To supersede queens at the age of two years is quite a task, even were it necessary; but when we come to consider that most queens are as good the third year as the second, while very many queens are good the fourth year, we see what a waste of time it is to go through all this work, simply for the reason that some have taught us that we should do so.

Now, let us look into the matter a little. I use as small a brood-chamber as any one in the world, the same having a capacity of about 800 square inches of brooding comb. This comb is kept filled with brood from the first of June to the middle of August, or 75 days. As there are about 50 cells to every square inch of comb, the queen must lay about 40,000 every 21 days (that being the time it takes to perfect a bee from the time the egg is laid), or 142,860 in the 75 days. Now, all good colonies generally have brood as early as February; and by taking the average increase of eggs laid from then to June 1st, and from the middle of August to the time of the queen ceasing to lay in the fall, which is about the first of October with us, we have at least 100,000 more, or about 243,000 for the year. If this is the case with the smallest brood-chamber used, it will be seen that still more would be reared in a large brood-chamber of nearly double this capacity, such as is recommended by the Dadants and others. In 1877 I made some large hives on the plan of the Adair "Long-idea" hives, making them four feet long. Into one of these I set a colony early in the season, they having a queen in her second year. She was worked to the best of my ability till she had ten Gallup frames literally full of brood. I now thought that she would be content, so that she would not brood in those which I put in for honey. In this I was mistaken; for, soon after I had 32 combs in the hive, she had brood in every one of them. We did not have the queen-excluding metal at that time, so I had to allow this two-year-old queen to do about as she pleased in the matter of egg-laying, and imagine my surprise to find, as I kept the honey out of the way of her with the extractor, that she kept brood in those combs for about two months, having at least to the amount of fifteen combs solid full of brood. This would give 86,250 eggs every 21 days, as a Gallup frame has 115 square inches, or thereabout, in it. As this rate was kept up for about 63 days, we have nearly 259,000 as the product of those two months, even after she had laid more that 400,000 while in the small hives the two seasons previous. The bees that worked in and out of the entrance of this hive during the basswood yield were a sight to behold, for it seemed like a surging army, going and coming all the while. For the benefit of the readers who did not take GLEANINGS at that time, I will say that this colony gave me a yield of 566 lbs. of honey that year, while the queen died of old age, or was superseded, during September of that year.

My queens average good and prolific in my small brood-chambers for three years, some doing good work in their fifth year; but as a few will fail in their third year, we will call it only three years that they will keep up the rate of egg-laying spoken of above. This would give us about 729,000 as the capacity of good queens during their lifetime on an

average, instead of 200,000, as given by the writers quoted. If I am correct, and I believe I am, from many experiments conducted along this line it will be seen that, if a queen laid only 100,000 eggs a year, she should be good for seven years. Then we see the extreme folly in the recommendation to supersede all queens during the fall of the second year of their life.

Again, we find in a noted work on apiculture the author saying that a good queen will lay 3000 eggs daily during the breeding season, which *is correct* where an ordinary brood-chamber is used; but when the same author discourses on the number of bees in a hive, he says there are from 20,000 to 40,000 in every good colony, and places their age at three months. Now, if I figure correctly, three months make 90 days, and 3000 times 90 would give 270,000 bees in that colony, barring accidents, instead of from 20,000 to 40,000. Brethren, let us try to be a little more accurate in our figures and decisions, lest we lead beginners astray, thereby causing them to do unnecessary work, or, perhaps, become disgusted with a pursuit which might otherwise prove profitable to them. G. M. DOOLITTLE.

Borodino, N. Y., Apr. 17.

Friend D., may I suggest that your remarks, to the effect that our prominent writers may take up a certain position from policy, is hardly charitable? If there are writers on bee culture who advocate a certain line with a view of putting money into their own pockets, not because of the greatest good to the greatest number, I have not found them. Such a man would be ruled out of our conventions and journals before he ever got a fair start. Very likely we are sometimes on the wrong track; but we certainly would not advise our neighbor to do something to his *detriment*, that we might gain by it. Our experience would hardly justify all your large figures, although we agree with you in many of them. I would never discard a queen while she is doing good service, any more than I would discard a horse or a cow that was doing good service; but with us we find that most queens begin to fail in the third year, as a rule. Now, we would not remove them *because* they were two years old, or three, but only when the colony does not seem to keep up in numbers. For years the average number of bees in a colony has been given as from 20,000 to 40,000, and this great number is reached only just before swarming time. In selling bees by the pound we have opportunity to test the matter pretty fairly. Several years ago, we during one season bought something like 100 natural swarms of bees. They were blacks, hybrids, and Italians, and were brought to us just as the swarms came out. Five pounds was a big average, and very few ran as high as six. As the matter has been pretty well settled that there are not to exceed 5000 bees in a pound, this would give the average number of bees in a first swarm as 25,000. In all our experience, covering a number of years, we have found only one swarm coming up to *9 lbs.*, and this came from a hybrid colony whose queen was wonderfully prolific. Your remarks in regard to the result obtained from that Long-Idea hive might almost revive again the boom on this special style of hive. Now, please tell us, friend D., why it is that you do not *continue* to work with a form of hive that gave you over 560 lbs. of honey in a single season. Almost every one of us succeeded in getting wonderful yields of honey from those hives with 30 or 40 combs; and yet, why is it that there is probably not one in use at the present day? I do not know that this has any particular bearing on the subject under discussion, but I have many times wondered why everybody had abandoned and broken up these long hives that were made with so much enthusiasm at the time.

BEES, INSECTS, LICE, AND SNAKES.

PROF. COOK TELLS US ABOUT THEM, AND DESCRIBES THE GLASS SNAKE FROM ACTUAL "INSPECTION" AND "POSSESSION."

MR. W. W. BLISS, Duarte, California, sends me three carpenter bees. They are large fine insects, but are so greasy that, unless I can remove the oil, they are spoiled as specimens. Insects should be killed either by use of a cyanide-bottle or by turning chloroform, ether, or gasoline, on them. In the latter case we may have to turn it on several times, as they may recover from a single bath. Insects should be put into a strong box, and inclosed in cotton, then a cent will bring them in the mail safely.

INSECTS FROM TEXAS.

A subscriber to GLEANINGS, Mr. Hailes, of Lytle, Texas, sends me a beetle and two spiders—all exceedingly beautiful. The beetle is *Lymentis Sallei.* As I had only two in our collection before, it was very welcome. It is black, lined and spotted with yellow—a regular Dolly Varden robe. I do not know the habits of this handsome beetle; but one closely related, *Euphosia inda*, which I have previously described and illustrated in GLEANINGS, eats into luscious fruit like peaches and ripe apples. This beetle, I presume, is not common enough to do much harm. The grub probably lives in the earth, and feeds on grass roots, while the beetle may eat leaves or some other vegetable substance.

The spiders were very deep red, with a velvety luster. It would be hard to imagine any thing more beautiful. Spiders though they are, they have elicited words of strongest praise for their beauty from every one of the many persons that I have shown them to. We hardly know how much of beauty there is in the world. Even spiders and insects may be as beautiful as the most showy bird or flower. I am very glad to get such specimens.

IVY SCALE LICE.

A letter from our good friend Dr. C. C. Miller incloses some leaves of the common English ivy, which are thickly covered on the upper side with thick viscid nectar. The stems are likewise smeared with the same sweet substance. Dr. M. says he could discover no insects except a few scale lice. He thinks it hardly possible that so few lice could secrete so much nectar. He adds, that nearly all the leaves are somewhat varnished with the nectar, while some are thickly covered over their entire surface. Some have drops as if the nectar had dropped from above, while often the drops are minute, as if they had oozed from the leaves.

This is not new to me. It is the common ivy scale louse, and is very common in greenhouses,

and on the ivy on our houses. This louse drops the nectar in fine drops, and it is this that coats the leaves. We thus see why the sweet is entirely on the upper side of the leaves.

The best way to rid plants of these pernicious scale lice is to brush the scales off with a brush and very strong soapsuds. This is not very tedious, especially if we take it in time. The kerosene and soap mixture will be better than the clear-soap solution, as the mere contact with the scale will destroy the insect.

These scale insects deposit their many eggs under the scale, and so increase very rapidly; hence it is not wise to permit them to get much the start of us.

GLASS SNAKES.

I have just received a beautiful glass snake—more properly glass lizard—from Willie Atchley, Farmersville, Texas. Willie is only fifteen years old, and writes a delightful letter. He says he was introduced to me by GLEANINGS when he first learned to read. This glass snake—Willie calls it joint snake—was sent to me alive by express, and was alive when it arrived, so it could give me a knowing wink. This alone would show that it was no snake. A snake has no eyelids, and so can not wink. Its facial expression varies only with its running out its tongue; in fact, a transparent scale is all the protection the snake has for its eyes—natural goggles—if we may so speak. Willie says this is young, and does not break so readily as older specimens; yet a blow across its back would cause it to drop its tail. This has no legs, hence it is called a snake. It is beautifully striped with greenish gray, or drab, black, white, orange, and yellow. The nose is long and pointed, and the ear-pits on the side of the head are large.

The long pointed nose is useful, as this lizard digs in the earth, and so is often dug up in digging potatoes or roots from the earth. Although it is footless it can crawl like a snake, and it moves quite rapidly. The color of this one differs not a little from the descriptions which I find in the books. This is drab above, instead of yellowish green, and greenish white below, instead of yellow. I presume that the colors would change as it becomes older. Again, the books say that the tail is twice as long as the body, while in this the tail is a little shorter than the body. This leads me to believe that it had previously lost its tail, and a new one was growing on. This seems more probable, as about one inch of the tip of its tail is very tapering, and looks like an after-thought, or, rather, after-growth.

The reason that the tail breaks off is, that the cartilaginous unions of the vertebræ are very weak, and so separate with a blow, or any wrench. This is true of all lizards, but especially so of this one. The erroneous idea that the tail reunites to the body, arose, doubtless, from the fact that the tail will grow out again when lost. The generic name of this glass lizard is *Opheosaurus*, which means snake lizard. The specific name, *Ventralis*, was probably given it because it crawls on its belly. The common name, glass or joint lizard, comes from its breaking apart when struck or caught. Altogether this is a very beautiful and interesting lizard, and I will double my thanks, which are already hearty, to Willie or anybody else who will send me an old one.

I have just received two fine blow-snakes from Virginia. The sender supposed they were venomous, but they are entirely harmless. I should especially like a big rattlesnake from the South or East. We have only the massassauga here, not *the* rattlesnake.

I shall be very glad to describe or name any animals high or low, from the South or anywhere else, that interest bee-keepers, especially any that are in any way associated with bees. A. J. COOK.

Agricultural College, Mich., Apr. 9.

Well, look here, old friend, you are not the only one who rejoices in the *possession* of a glass snake. Mr. W. P. Phillips, of Kaufman, Texas, sends us one about as you describe it, only it has a full tail, without any abbreviation or "after-thought." When received we put it into a box with a glass cover sliding in grooves, and I set the box on my table to show to the friends at the noon service. I did not occupy the whole time of the service, however, in talking about snakes; my second theme was, "Love ye your enemies;" and I got to talking so earnestly about it that I forgot all about the snake. I did notice, however, that Ernest looked a little bit troubled, and I saw his eyes drop toward the floor, but did not think much about it. When prayer was ended, however, they all rushed forward, telling me the snake had "got out." He had used that long tapering nose you speak of, by means of a little crack that I left him for air, to slide back the glass. Then he leisurely crawled out, coiled around among the great heap of letters on one corner of my table (waiting to be answered if I shall ever get time), and then tumbled off on to the floor "ker flop."

I was so interested in my theme that I did not hear the snake drop, nor did I see it at all; and, strange to tell, he did not snap his tail off either, but just made faces, and darted out his tongue at the boys and girls, who were much more interested in his snakeship than in *loving their enemies*—especially *just then*. John held the box before him, with the glass slid back; and the rest encouraged him by surrounding him and urging him on. Pretty soon the snake crawled back into its case, and has got out only once since The girls are feeding it flies, bugs, and angleworms, which he takes and seems quite contented. When the office is cold he winds himself up into a compact little circle, much as the bees draw themselves up in the winter time. When the office becomes warm he stirs around and amuses himself by trying to push his door open again. We have not tried snapping him in two yet. We are afraid we should have more trouble in putting him together again than in making the break. Will friend Phillips please accept our thanks?

A TABULATED REPORT OF OHIO BEE-KEEPERS.

GATHERED BY THE STATISTICS COMMITTEE OF THE STATE BEE-KEEPERS' ASSOCIATION AT CLEVELAND.

Mr. A. I. Root:—I send you by this mail the tabulated reports of bee-keepers, so far as sent me in answer to my request. As there have been some

reports sent in since the meeting, it will not be an exact duplicate of the report of the Committee on Statistics. I do not understand why, when I have been to so much trouble in preparing the forms and sending them out, that bee-keepers will not take the trouble to write a few words, when it is really more for their interest than my own.

MISS DEMA BENNETT, SEC.

Bedford, O., Mar. 11, 1890.

We are sorry to say that this report is a little late. Not having the necessary sorts of type to set the complete table we had to order more. In reply to Miss Bennett's query, we would say that, according to our own experience in gathering statistics from bee-keepers, they are a little slow to report. The reason is, it is so handy to put it off, we suppose. The reports show that not a very large crop of honey was produced last year in Ohio. With one or two exceptions the Langstroth frame is used exclusively, and with very few exceptions outdoor wintering in chaff was practiced. It was a little too early when the reports were rendered, to determine how the bees wintered. By looking down the tabulated report of the year previous, we see the losses were very slight. During the winter of 1888 our friend H. R. Boardman reports 450 in the fall, and 450 in the spring. You know he is the man who does not lose bees in winter. Another bee-keeper, J. B. Hains, of Bedford, O., had 400 in the fall of the same year, and came out the following spring with 398. These were wintered in chaff, outdoors. A careful perusal of the report will show many interesting features.

NAME.	Colonies, Fall 1888	Colonies, Spring '89	Colonies, Fall 1889.	C'b Honey lbs., 1889.	Ed Honey lbs., 1889.	Wax pro'd in 1889.	Hive Used.	How Prepared for Winter in the Fall of 1888.
A. B. Mason, Auburndale, O...	32	32	33	150	1000	10	Langstroth.	In cellar, with quilt on; no bottom-board or cover.
E. Hanchett, Newburg, O.....	20	18	19	100	50	6	L. Double Wall.	Leaves on top; newspapers at side.
Moore Bros. Rockaway, O.....	123	115	150		3000	50	Langstroth.	50 in cellar; 73 in chaff hives.
F. G. Fenton, Bluffton, O.....	26	23	25	500	500	15	Langstroth.	Chaff hive.
Marcus Holtz, Tiffin, O.....	19	17	23	500			Langstroth.	Outside.
J. S. Barb, Oakfield, N. Y.....		20	23	200		20	Langstroth.	Packed in chaff.
B. F. Jenkins, Willoughby, O..	38	37	40	150	100		Langstroth.	Chaff hive.
I. N. Noland, Independence, O.	17	10	24	100	500		Langstroth.	Half in Simplicity, half in one-story chaff.
Bruce Hobbs, Danville, O.....	11	9	18	300			Langstroth.	Chaff hive.
C. A. Graves, Birmingham, O..	90	65	75	300	180	15	Langstroth.	Chaff and Simplicity; out doors and in.
C. R. Page, Streetsboro, O....	22	18	28	300	150		Langstroth.	Chaff hive.
C. A. Camp, Painesville, O.....	43	40	40	150			Own Make.	Chaff hive.
J. B. Hains, Bedford, O.....	400	398	382	1000	2500	50	Langstroth.	Chaff hive.
D. Bishop, Harpersfield, O.....	20	17	26	400		10	Langstroth.	Chaff hive.
E. M. Johnson, Mentor, O.....	165	156	167	500	200	23	1½ Story.	Chaff hive.
O. J. Post, Chagrin Falls, O....	34	31	32	100	200	10	Langstroth.	Falcon chaff hive.
S. F. Newman, Norwalk, O.....	150	144	220	2958	1000	50	Langstroth.	Half in Root's chaff, half in cellar in Simplicity.
D. B. Lovett, Crestline, O.....	60	55	70	500	100			Part in cellar, part on summer stand.
H. R. Boardman, E. Townsend.	450	450	300	4000	500	100		
D. White, New London, O	150	125	130		1500	50	Langstroth.	Root's chaff hive.
A. Webster, Painesville, O.....	70	60	75	1500	200	10	Langstroth.	Root's chaff hive.
A. M. Coe, Coe Ridge, O.....	39	38	45	800	100	10	L., New Heddon.	Packed on summer stands.
W. Peirce, Garrettsville, O....	90	75	90	600	100		Langstroth.	Nearly all in cellar; loss due to starvation in May.
B. Wells, Fostoria, O.		34	39	325	125		Langstroth.	Double-walled hive.
Mrs. O. D. Newcomb	18	18	18	550			Langstroth.	Falcon chaff on summer stand.
C. McClave, New London, O....	36	30	41	1.0	400	10	Langstroth.	Chaff and Simplicity.
G. V. L. Mellinger, Canton, O..		3	11	36			Langstroth.	Simplicity hive, in cellar.
C. H. Coon, New Lyme, O.....	18	17	22	300	50	8	Langstroth.	Ten packed with outside shells on sum. st'ds; 8 cellar.
H. Besse, Delaware, O.....	50	45	107	1000	1000	25	Langstroth.	Top off, in cellar.
A. R. Munn, Macedonia, O.....		22	35	400	200		American.	Chaff packed.
C. Fowls, Oberlin, O.....	95	75	99	400	500	8	Langstroth.	Chaff hive.
E. A. Eaton, Bluffton, O.....	110	105	110	2733	447	55		
N. Case, Orangeville, O.....	70	60	75	2000	100		Langstroth.	Chaff hive, outdoors.
O. J. Terrell, N. Ridgeville, O..	14	12	24	125		20	Langstroth.	Simplicity.
G. L. Tinker, New Philad'a ...	45	38	50	1500	500	10	Nonpareil.	Half in cellar, half out; lost 7 from bee-diarrhea.
N. T. Phelps, Kingsville, O.....	75	71	81	725	300	16		Packed in chaff, on summer stands.
E. Difany, Norton, O.....	52	52	60	785		12	Various kinds.	In bee house.
D. F. Sapp, Ravenna, O.....	36	30	41	150	400	10	Langstroth.	Simplicity and chaff, on summer stands.
S. N. Pond, Independence, O...	5	5	20	73	60		Langstroth.	Simplicity, on summer stands.
L. Grant, Jr., Chardon, O.....	90	45	55	400	175	55	Langstroth.	Chaff hive.
A. Rickenbacher, Gahana, O...	70	60	90	800	1500		Langstroth.	Outdoors.
J. Funk, Beach City, O.....	46	19	29	300		30		In cellar.
C. A. Newton, Ravenna, O.....	6	6	7	50			Frame 9½x14.	Packed outside.
W. L. Dakin, Burton, O.....	10	8	16	100		4	Langstroth.	Falcon chaff hive.
F. Campbell, Steubenville.....	25	21	40	150	200	20	King.	Outside.
J. Bogue, E. Orwell, O.....	40	25	34	600		20	Langstroth.	Packed in chaff.
F. A. Kinnear, Lindenville, O..	47	46	49	1200	200	10	L. and Kinnear.	Packed in chaff, and chaff hive.
P. F. Twitchell, Andover, O....	4	3	8	150			Langstroth.	Packed in chaff.
Mrs. W. Wade, Warrensv'le, Pa.	6	6	6	100			Langstroth.	Outdoors.
S. M. Jones, Padanaram, O.....	27	23	40	400	600	20	Langstroth.	Outdoors.
Mary McAfee, Solon, O.....	10	10	20	100		4	American.	Outdoors.
W. Irwin, Columbus Grove, O.	25	24	45	732			Langstroth.	Packed with leaves, outdoors.
G. Hoover, Canal Fulton, O....	25	23	29	125			Langstroth.	Root's chaff hive.
C. W. Smith, N. Benton, O.....	21	20	25	550		10		Chaff hive.
H. A. Boardman, Weston, O....	24	17	27	550	200	5	Langstroth.	In cellar.
H. Hastings, Kenton, O.....	105	100	115	3200			Triumph.	Packed in clover chaff.
C. L. Greenfield, Somerville, O.	22	20	40	1000			Langstroth.	Chaff packed.
R. B. Woodward, Somerset, O..	17	17	20	700	800		Langstroth.	Chaff hive.
J. M. Pierson, Tippecanoe City	25	30	40	300	300	10	Langstroth.	Part in Simplicity, part in chaff.
J. W. Bayard, Athens, O.....	70	65	100	1500	300	30	Langstroth.	
C. Berkey, Savannah, O.....	111	104	105	500	175	20	American.	On summer stand.
J. W. Chalker, Mantua Sta., O.	16	14	23	500			Langstroth.	On summer stand.
G. P. Kime, Evansburg, Pa....	44	41	65	4800			Langstroth.	Simplicity, packed in chaff, on summer stands.
C. O. Hale, Ira. N. Y.....	22	16	17	100			Langstroth.	Simplicity, on summer stands.
Mrs. N. Marks, Newburgh, O...	14	12	20	180			Langstroth.	Outdoors.
N. A. Knapp, Rochester, O.....	40	35	47		1200	15	Langstroth.	Root's chaff hive.
J. C. Bowman, N. Lima, O.....	25	20	40		1000	10	Langstroth.	Chaff hive.
L. G. Reed, Kent, O.....	45	38	42	250			Langstroth.	Simplicity hive.
O. A. Cory, Frankfort, O.....	60	46	61	3500	2200	30	Royall Dbl. Wall.	Outdoors.
D. K. Guaff, Milan, O.....	5	4	10	70			L. Am. Frame.	Simplicity, with chaff cushions.
Mrs. M. George, Bowling Green	39	38	47	140	2000	20	Poppleton.	Chaff hive.
Mrs. M. H. McPherson.....	33	25	61	500			Langstroth.	Simplicity hive.
Allen Bartow, Milan, O.....	12	12	18	200			Langstroth.	Simplicity hive, in cellar.
W. Ballantine, Mansfield, O....	29	25	49	250	50		L., Imp. Mitchell.	Packed in chaff.
J. H. Beery, Ravenna, O.....	40	30	62	500		15	Langstroth.	Packed in chaff.
H. J. Gifford, Greenwich, O....	31	26	28	125	265		Old Shiffles	
....	55	52	66	1500	2000	25	Own Make.	Chaff hive.
.....		36	50	500			Langstroth.	

CRATING AND MARKETING HONEY.

VALUABLE SUGGESTIONS FROM ONE OF LARGE EXPERIENCE.

In regard to shipping-cases for comb honey, I believe the size, 24 to 32 lbs., to be the very best, all things considered. In fact, some honey was crated in stiff crates of six cases of 12 lbs. each, making a total weight of 80 lbs. or so, and I never had any honey ship better. The crate was open all around, and the cases glassed, so the railroad men could see what they were handling. One great danger to small cases is, that they will be piled up; and when other freight supporting them is removed, down they go. Your humble servant had about 600 lbs. of beautiful honey entirely ruined this last year in just that way. The honey was in 12-lb. cases, and not one-sixth of it came unbroken. I am convinced that a rather showy and very plain label, six by six, of such size as to be conspicuous, will be a valuable aid to safety in shipping. I think the great thing to aim at is to have as large bottom area as possible, compared with the weight of the case, and there should never be two tiers of sections. When any in the upper tier are broken, they daub the ones below. Of course, any one who is thoughtful will put heavy paper between.

Another great aid to neatness would be to put heavy paper in the bottom of the cases in such a way as to come up a little around the sides to prevent the honey running out of the cracks of the case and smearing every thing. I have sometimes seen paper tacked on the outside, but this is unsightly.

I can sympathize with friend Nance thoroughly when he speaks of people asking him whether his was bee honey. Why, this very day an old and very intelligent-looking gentleman asked me if this honey I was selling was genuine. It was broken honey on butter-plates. "Why," said I, "I am surprised at your asking me such a question."

"Oh!" said he, "that is just as easy as making hens' eggs, and they are doing that every day."

When I meet these people I have now one way with them. I get them into bee-talk; and if they know a little about bees, so much the better; and then by the time I am done with them they are convinced that I am selling pure honey, whatever any one else may do. And that is, after all, the main point. Of course, my private estimate of the average intelligence of such as the foregoing is not very high; but it would not do to let them know that. I have found, time and again, that traveling men delight in repeating or originating *lies* about our business, about which, in point of fact, they knew absolutely nothing. One in particular in Logansport, last summer, told me that the firm he traveled for (Franklin McVeagle & Co., Chicago), made and sold lots of manufactured honey, and especially comb complete. I wrote them, giving his name, and they in their reply branded him as a liar, and said they sold pure honey, in comb and *out of comb*.

In regard to shipping comb honey, after having shipped thousands of pounds in all sizes of cases, and at all times of year, I would never advise any one to ship comb honey in less than *car* lots when it must be transferred. That settles the matter for me. The risk is too great. It is like running your own risk against fire and not insuring in some good company. Any one accustomed to handling honey could almost give the disposition and character of any person on inspection of honey he had shipped to market. How often do we find cases *faced* with beautiful white sections; and inner rows composed wholly or partly of culls—dark, half-filled combs! In fact, honey in pasteboard cartons is not very popular among our merchants, owing in part, no doubt, to the temptation to put in a few poor boxes where no one can see them. That's all right for once, if you have no conscience; but be sure you don't put any name or address on your shipping-boxes so they can remember who you are. Honesty is the best possible policy, whether in packing honey or elsewhere. I have in my mind's eye just now as fine a lot of white-clover honey as one would wish to see, which is in one of our commission houses here awaiting a buyer. Why does it not sell? I'll tell you. It is in 56-lb. cases of 1¼-lb. sections, and nearly half of the sections are loosened out of the frames. This is caused largely by the extreme size of the cases and the avarice of the shipper, who put in many sections that were imperfectly fastened at the bottom and sides. Far better give the poor sections away at home than to send them along to market to spoil the condition and sale of a lot of good ones.

Another great mistake that our bee-keepers make is to use the unfinished sections of last year in the hive this year, having in them the candied honey that was kept over. We have done so to our sorrow, and have handled lots of honey that became candied before being sold, for this reason. Always put the unfilled sections that contain a little honey in the extractor, and throw out the honey that is in them. Ten or twelve sections at a time can be easily put into the extractor, to expedite matters. H. F. MOORE.

Cleveland, O., Apr. 4.

(*To be continued*)

Friend M., your suggestion in regard to a thick paper, with the edges turned up in the bottom of the case, so as to hold the honey instead of letting it run out and daub every thing and everybody, it seems to me is a very wise suggestion. I never want to see any more such stickiness as I have seen twice during the past year, with broken comb honey.

THE VAN DEUSEN CORNER.

INVENTING NEW HIVES.

Friend Root:—I do not think the Van Deusen metal corners would interfere with the honey-knife in uncapping, to any great extent. The new corners do not project quite $\frac{1}{16}$ of an inch from the side of the frame, and are beyond the sweep of the knife unless it happens to slip. But this is only "think so" on my part, for I produce no extracted honey, and have never uncapped a comb in a frame having these corners. They could not possibly interfere so much as would your tacks, for they project less than half as far, and are situated more remotely on the corners than tacks can be placed.

Of course, you abandoned the plan of spacing frames with tacks a good many years ago. So did the rest of us who handled frames very much. It is one of the early symptoms of the bee-fever. The first bad symptom is to invent a new hive, this usually appearing with the victim's first colony of bees. When this colony casts a swarm or two, and the owner finds that, in placing the newly hived

swarm on its stand, the frames slipped over to one side and the bees fastened them all together with a mass of new combs, the spaces all the rest of his frames, for a year or two, with tacks. Then he finds that, when he lifts a comb, the tacks scrape the combs and catch on the top-bar; and when he tries to return the comb they scrape and catch again, and the frame refuses to go to its place without lots of coaxing. He then concludes they are more in the way than a wheelbarrow on a dark night, so he pulls them out and throws them away. The tack stage rarely lasts beyond the second or third year of experience.

THICK TOP-BARS AND HONEY-BOARDS.

I have been an interested spectator of the GLEANINGS symposium on the thick top-bar and the honey-board. It may be that thick top-bars closely spaced will prevent brace-combs above the frames; but even if that be true, I think it safe to predict that the honey-board will be retained by a large majority of bee-keepers. Those who produce extracted honey, and believe in confining the queen to the lower story, will keep it; and the comb-honey men who believe in contraction (and their name is legion) can not get along without it. The shallow frame in some form is the coming frame, and that necessitates the use of the excluder. The bee-keeper with a shallow fixed frame cares but little for the burr-combs under the excluder, for he can make nearly all the necessary observations by standing the brood-chamber on end, and investigating without removing the honey-board. In comb-honey production contraction is the key to success, and the excluder alone makes contraction possible.

Audubon, Ia., Mar. 13. Z. T. HAWK.

If excluding queens from the supers is all the use we would have for a honey-board, why not dispense with the slats, and use instead a plain sheet of zinc large enough to cover the hive? This would be very much cheaper. We sell thousands of sheets like this to large honey-producers, who desire to keep the queen below, but who never used a slatted honey-board.

CALIFORNIA.

THE LAST THREE YEARS OF FAILURE OF THE HONEY CROP.

THE remarkable failure of the honey crop in California for the last three years has set the best minds in the business to thinking whether it is worth while to keep their means invested in a calling so uncertain and precarious. In seven years we have had only two seasons in which bees paid. It is true, that in both those years, 1884 and 1886, they paid as nothing else could pay, as no other legitimate business is likely to pay. They increased 400 per cent, and produced honey which brought 400 per cent on the capital invested. In other words, the owner's capital was multiplied four times, and his apiary four times as large. In 1888 and '89 there was plenty of rain—an abundance of it. But it was all heaped up like a hill—all in a pile. To make a good honey season here we must not only have plenty of rain through our winter season, but it must rain several times *after the black sage comes into bloom*—that is, throughout March and most of April. We are just now at the turning-point (latter part of March) where the rain may cease and make a poor season, or continue for a month and make a first-rate crop of honey. Who can tell?

FRAMES AT FIXED DISTANCES.

In March 1st GLEANINGS you ask, "Which is the greater evil—burr-combs or fixed distances?" I would answer, fixed distances—yes, a thousand times greater. Why, it destroys at one fell blow the most vital principle of the Langstroth movable frame! Why not go back to the Harbison hive? It had this principle of frames set on nails, forty years ago, together with other machinery to make frames as difficult to get out as possible. Staples or nails, it is the same thing. Drive a headless nail through the frame, and then let the bees fill it all over and under with bee-glue, and you would have to have a crowbar, a pick-ax, and a wild "Ingin" to handle that hive. No, no! Let the brace-combs come. If their absence is to be bought at such a price, let the burr-combs roll in—but spare, oh spare the movable frame! Don't think that I love these burr-combs — no, no! I do not yearn for them, I do not pet them in the daytime, nor howl after them in my sleep at night. I could part with them without a sigh, a tear, or a groan; but, part with them at such a cost as this? Never, never.

The bees are just preparing to swarm. All nature has put on its most bewitching harness. The black sage is coming out in its holiday attire—has thrown its banner to the breeze as the unrivaled honey-plant of California, and rivaled only in the world by the white clover. Many bee-keepers are sure of a big season. They are already figuring out the way they will invest their money. Don't you think we had better wait until we see if we get three or four more good rains? J. P. ISRAEL.

Olivenhain, San Diego Co., Cal., Mar. 30.

The old Harbison fixed frame is something that none of the Eastern bee-keepers would tolerate. Of all fixed frames this is the worst to handle, I should say, from what I have seen of cuts and description; and if the riddance of burr-combs meant the use of such a frame, I would heartily agree with you. But *all* fixed frames are not equally difficult of manipulation. If I am any judge, the Van Deusen fixed standing frames are about as easily handled as any suspended frame. Propolis can not gum them together, and, of course, a screw-driver and cold-chisel are not needed to pick them apart; and they are always ready for moving to out-apiaries or shipping. The Heddon closed-end frame, with the thumb-screw, is not so difficult to manipulate as many might imagine. I scarcely ever find beginners who space their frames properly, and then they want to know why the bees build their combs so crookedly. Fixed guides would remedy this. After all, fixed or standing frames may not receive a very hearty recognition at the hands of practical bee-keepers; but a wonderful amount of interest from those who use suspended frames is being manifested. In regard to burr-combs and fixed distances, you are laboring under a slight misapprehension. Fixed distances are not a *necessity* for the riddance of burr-combs, but only assist toward that end. J. B. Hall, who has no burr-combs, uses, if I am correct, suspended Quinby frames without fixed distance-spacers.

FROM THE LAND OF THE PHARAOHS.

BEES AND BEE-KEEPING IN EGYPT.

WHEN Israel and his children had done eating the corn they had brought from Egypt, they decided to go down again, and they took with them a little balm and a little honey, spices and myrrh, nuts and almonds. Spices, balm, and myrrh, seem to have been an article of commerce between the Holy Land and Egypt, as we see the Ishmaelites carrying it down with them to Egypt, on their camels. The balm of Gilead has disappeared long since; honey is still to be had, although it never was so plentiful in this country as to need to be exported by the natives. The treacle, or "dibs," manufactured by the Mohammedans out of their grapes, mostly about Hebron, in the very place where Joshua and Caleb cut down a cluster of grapes, still forms an article of commerce, although later on we read in the prophet Ezekiel that Tyre imported honey also from Israel. The best Palestine wine is made out of the grapes of Hebron; but the Mohammedans, whom their law forbids the *handling* and *drinking* of wine, make treacle out of their grapes. This is carried in he-goat skins into Egypt, just in the same manner they used to do it in this unchangeable place 4000 years ago. The bottle which Hagar took, filled with water; the bottle of milk out of which Jael gave Sisera drink; the bottle of Hannah, the mother of Samuel, in which she took wine; the bottle of wine which Saul met, carried by a man near Bethel; also the bottle mentioned by the prophet Jeremiah (13: 12), were made, very likely, in the same way, if not in the very same place, as the best are now manufactured out of good he-goat skins at Hebron, and used for the transportation of oil, butter, honey, and treacle, and on a great scale for carrying water from the well or fountain to the houses, the mouth being tied with a string, as all the bottle is soft. Spices also, and myrrh, are brought from Mesopotamia. Nuts and almonds are not so abundant now, but in their stead dry fruits are greatly exported, such as raisins and figs, which plants have ever been abundant here, as Judah and Israel dwelt safely, every man under his vine and under his fig-tree, from Dan even unto Beersheba, all the days of Solomon.

The way to go down to Egypt on camels is still practiced by the Bedouins, the very descendants of those Ishmaelites; but the way by sea is a good deal shorter and safer, as their "hand is against every man." The land of Egypt still receives a great deal of honey, mostly imported, as I thought, from the Grecian Archipelago and Asia Minor. I thought very little of the apiculture of the country when I entered the city of Alexandria in December last. This is a very commercial town, and the omnibuses, carriages, and all ways of locomotion, driving up and down the streets, and the railway whistle, once more struck my ear. I felt nearer to civilization again. In the markets, every thing is properly arranged. You know in our town of Jaffa the streets are hardly ever swept, and there is no want of display of goods. The natives know nothing, and do not care that the goods be properly put before the public.

I went out for a stroll into the country, to see what vegetation was there for bees and animals. Across the Mahmondie Canal, on which the bales of cotton coming from the country are conducted on ships to Alexandria, dragged by four or five men, the fellahin of Egypt have built some mud villages. At the Khedive's Garden of Nuzha (enjoyment), the fellah village of the same name was built. I was delighted to hear of a man having bees. I went to him, filled with prejudice which I had received from some travelers to the effect that the Egyptian fellah would under no circumstances talk about bees, or let his bees be seen. I was presented to a man owning bees, and immediately the man brought a ladder of six or seven steps, put it against his house, and preceded me to the apiary, which was on the house-top, consisting of 22 hives of different shapes, irregularly made of mud of the Nile, and one in a cement-barrel. He even offered me some for sale at $4 00 each, which, after considerable bargaining, he would let me have at $2.50 each. They were placed horizontally on each other, in four rows, and besmeared with mire out of the canal, which altogether secures them against the occasional rains and warm sun during the long and fearfully hot summer (or sun) months. The owner seemed to know a few principal items of the bees, as the existence of a duke (queen), drones, and worker bees, or females; that in a favorable year honey is taken twice by the bee-master coming from Alexandria. He had read of bees, and, as he said, could not judge how much honey was to be taken, and how much left. The bee-master discharges his duty conscientiously. When a swarm issues he puts it into an empty clay or mud cylinder, and leaves it till the harvesting season, which is about February or March, as near as I could make out, partly from clover and partly from broad beans. There is a second harvest about the month of August, and which he thought is principally from the trees in the immense Royal Gardens. Very likely they yield some honey, but more likely the locust-trees by which the road is shaded give him that same crop.

The way this man kept his bees, harvested, swarmed, and built his cylinders, was very much like the average bee-keepers in Palestine; and when I say the average, I think it is as in every other country and with every other pursuit, that the greatest number pursue their calling carelessly. It is all left to Allah (God) and luck, meanwhile not moving a finger toward luck. They are the laziest set of people you ever saw, smoking or sleeping whenever they have a chance, and this "chance" often presents itself. In general they draw back from any innovation on what "my forefathers did. I will stick to their example; they knew well what they were about."

I did not find this first apiary and the description of the owner in accordance with what an Austrian bee-keeper, who recently had traveled about the Orient, described them to be. As he talks German only, he could not find out exactly their way of bee-keeping. He even says, "Not a single interpreter could be found that could translate the word *bee* in Arabic;" but I found no difficulty in finding this apiary above described, and I met with no drawback at all. The man never expected to be paid for his information. The said traveler paid $2.00 to whoever would let him know of the existence of an apiary, and it was not until the fifth day that he took hold of a bee; and with this trophy and the $2.00 bucksheesh he found some miserable-looking apiaries, half ruined, and the others going to ruin before long. Now, it is very common that such passers-by, in a strange country, give their opinions as facts, and utterly change the face of a

country, doubtless without thinking *themselves* to be utterly wrong.

A little bit encouraged by the apiary at "Enjoyment," near Alexandria, I took a walk into the country near Cairo, to see the ruins of the apiaries described, and with fear of being as inhospitably received as our traveler. I went to the village, trying every possible way to have at least a look at the apiaries. As our traveler could see a hive only after giving a good bucksheesh, and would be told nothing of the interior of the hive, could buy none, and was even warned to draw back, his conclusions were thus: "Bee-keeping in Egypt is going to ruin." The village of Gizeh has the same empty hives; but every one readily gave me information, saying that bees were to be found only further out in the country; that if I could take a donkey-driver, the general way of traveling round about Cairo and other towns in Egypt, he would show me what I wished for, provided I paid the regular fare for the donkey. We immediately agreed, and on donkey-back I rode out into the beautiful clover-fields which are irrigated by the waters of the Nile, and once a year by the overflow of the Nile, toward the middle of August. What I saw I will relate at another time. PH. BALDENSPERGER.

Jaffa, Syria, Feb. 11.

To be continued.

SHALLOW HIVES.

MORE ABOUT THAT SHALLOW WISCONSIN HIVE THAT HAS BEEN IN USE SO LONG.

Friend Root: — In mentioning my hive at the Wisconsin Bee-keepers' Convention at Madison, you say it "has a rabbeted top, similar to my Simplicity hive, to keep out wind and rain." I want to explain that the rabbet in my hive is not made to keep out wind and rain, but to always keep just a bee-space between the frames of two or more hives when tiered up on top of each other. I now have a hive of the first lot of 50 that I ever made. I made them in 1865. The frames had a full bee-space, both above and below them, just as an ordinary one-story hive should have; but when I set two or more of them on top of each other there was a space of ¾ inch between the top and bottom of the two sets of frames, and I invented the rabbeted sides of the top and bottom of my hives to correct this fault, and I have used it on all hives since the year 1866, when I first used the above rabbet. The only change I ever made in my hives was in making the frames deeper, and in this respect I have tried various depths, from 4½ to 9 inches. But of whatever depth, I used them in pairs. In your original Simplicity you had the same difficulty, and met it by making the top of your frames without a bee-space over them; and in making your new Dovetailed hive I see you have met the same difficulty by making the frames even with the bottom of the hive, and making a bee-space under them by nailing strips on the bottom-board.

Now, in my plan there is always a bee-space at top and bottom, with a plain cover and plain smooth bottom-board; and yet when two or more hives are set on top of each other the necessary bee-space between them is maintained; and I consider it the best thing for the purpose yet in use. If you think it of interest, I will send you one of my hives that I made in 1865, and one as I make them now. Mr. I. Ingmondson, of Leroy, Minn., removed his bees from Langstroth hives to them in 1866 or '67. He is dead, but I am making research as to what became of his hives and bees. When I invented my hive I was using Langstroth hives. I was agent for his patent in this county, and have never regretted changing hives, although I do not think them indispensable to successful bee-keeping. I first thought the closed-end frames a big thing, because they are reversible; but I did not like them after a fair trial, and I don't think reversing pays for the trouble.

Forestville, Minn., Mar. 18. BARNETT TAYLOR.

Friend T., I beg your pardon for intimating that the rabbet between your upper and lower stories was made to keep out wind and rain. Since you suggest it, I remember now, that, in devising the Simplicity hive, this beveled shoulder was decided on more for securing the bee-spaces you mention, than to keep out the wind and rain. It does seem as though the average bee-keeper would *never* be satisfied with closed-end frames or closed top-bars.

ALFALFA A HONEY-PLANT IN UTAH.

BEE-HUNTING; BRUIN, AND HOW HE GOT HIS SHARE.

BEING an interested reader of GLEANINGS, also an amateur bee-keeper, I thought I would pen you a line. I noticed an article in GLEANINGS from D. L. Williams, of Idaho, on the subject of lucerne, or alfalfa. What he says on the subject would apply to this locality as well, as it is raised here extensively, averaging from three to eight tons per acre, also growing seed in paying quantities. I believe it produces more honey where it is necessary to irrigate it. We usually irrigate six times through the season, getting three crops of hay. There are thousands of acres raised in this county alone, and it is raised extensively all over the territory. That and sweet clover are our main honey-plants. The bees work on it from about June first to the middle of October.

My two brothers and myself own a sawmill in one of the canyons east of Provo. We had some exciting experience in bee-hunting last summer. First, we found a large number of bees at work in the little spring which supplies us with water that would do A. I. Root good to imbibe on a warm summer day. One afternoon we quit work earlier than usual, and followed one of the lines that led up the mountain, and in a short time we had located three bee-trees, one of which was in a large black fir, about four feet through. Next on the programme was an advance on the peaceful inhabitants of the trees. Armed with axes, pails, tubs, smudge, etc., we scored an easy victory, carrying off for spoils (on the double quick) a heavy load of bee-stings. It would have done you good to see us taking steps down the mountain, utterly regardless of any thing but the wild desire to get away from that tree. We finally manufactured veils, and with some misgivings returned to the tree, where we found the bees all quiet. We hived them in good style, putting in all the brood-combs, and getting about 100 lbs. of good honey. We next proceeded to convey the spoils, together with the stings we carried in our hands, faces and hair, to the mill. I have cut quite a number of bee-trees, but I never saw one equal to this one in the stinging line. About sundown one

of the boys went back for the bees, but he found his possession disputed by a large grizzly bear. He did not dispute long, however, evidently thinking discretion the better part of valor. He strolled back, hat in hand, making the best time on record. Some of the boys said you might have used his eyes to hang your hat on when he arrived. We returned next morning, but found that Bruin had recklessly strewn things in every direction, having evidently taken some of the remedy so highly recommended for rheumatism. E. M. WHITING.

Springville, Utah Co., Utah, Mar. 3.

Thanks for your facts in regard to the alfalfa in Utah. If the bees do so well in trees, I would by all means start an apiary; but I want to tell you that, if you expect to prosper as a bee-keeper, you will have to come to some sort of understanding with that grizzly bear. If he has had a good dinner of honey *once*, he will not forget it, you may be sure.

BOTTOM STARTERS IN SECTIONS FOR SAFE SHIPPING.

DR. MILLER CALLS OUR ATTENTION TO AN EXCEEDINGLY IMPORTANT MATTER.

THE more completely a section of honey is filled out at top, sides, and bottom, the better it looks; and for shipping, it is quite essential that the attachments at the sides, and especially at the bottom, be good. For several years I have secured this by putting in a starter at both top and bottom of the section. When the comb of honey is fastened just as securely on the bottom-bar of the section as on the top, you have about all you can get, so far as the section is concerned, to secure you against breakage in transportation. When a single starter is put in a section, and fastened only at the top, the bees often make no fastening at the bottom, and very little at the side. To make such sections carry more safely, some have made a practice of separating them in the shipping-case by pieces of heavy manilla paper, much in the same way as sections are separated in a super, only the manilla paper extends from top to bottom of the section. The idea is, that if one section breaks out it topples over against its neighbor, and, like a row of bricks, the row of sections clear across the shipping-case is broken out. The manilla paper prevents this, so that one section breaking out does not affect its neighbor.

Another device has been, to invert the section when about half finished, when the bees make sure to secure both top and bottom—a good plan, but too much work to invert each section singly, and not satisfactory otherwise.

Still another way is advocated; that is, to use open-sided sections, so as to induce the bees to fasten the combs better. Different advantages have been claimed at different times for these open-sided sections, and I am a little skeptical whether any one of the advantages claimed has ever held good. When I first heard of open-sided sections—I am not sure whether any thing was said about them in print then—I had a good deal of faith in them, and whittled out the sides of a hundred, with a jack-knife. The chief advantage then claimed, was, that with such sections separators were not needed. I was disappointed in this; and, indeed, in my limited trial I did not succeed in finding that they had any advantage. I have seen specimens of open-sided sections in which the honey was beautifully filled out clear down to the bottom at both sides; but I have seen it just as beautifully filled out in common sections, and with a single starter at that. But even if the bees should do better work at filling out a certain kind of section, I still think I should want a bottom starter in each section, to make *sure* that the comb is built out and fastened just as well at the bottom as at the top.

I have experimented considerably to find out the best width for a bottom starter. If too large a starter is used it topples over; and if too small, the bees are pretty sure to gnaw it down. I succeeded, however, in using bottom starters an inch wide or deep, and contemplated trying them larger. But later I found some of these had fallen over, and I settled down on ¾ of an inch as large enough. This, with a 3¼-inch starter at top, fills the section except a small space between the two, which the bees have no difficulty in filling up. I have been asked whether a bad-looking section is not made if the top and bottom starters do not meet pretty nearly in the same plane. Not at all. I have seen the top starter swing to one side, and the bottom starter bend over to the other side, so that there lacked half or three-quarters of an inch of being a perpendicular line from one to the other, and the bees seemed to finish them promptly; and when finished, you could not see the slightest imperfection. It takes no more foundation to fill a section with two starters than with one, the only difference being the time taken to put in the extra starter, making an extra expense of one or two cents on a hundred pounds, and sometimes saving a good many cents in shipping. C. C. MILLER.

Marengo, Ill., Mar. 13.

Friend M., our experience in buying honey shipped in to us during the past two years has prepared us to indorse most emphatically the point you make. We are glad, also, to have your testimony in regard to the open-side sections, even if it does not favor them. One thing is certain: Our orders for sections made with open sides are getting to be few and far between.

REARING AND SHIPPING QUEENS.

READ AT THE VERMONT STATE BEE KEEPERS' CONVENTION, BY A. E. MANUM.

THE queen-bee, whose beauty and capability we can scarcely comprehend, is the most important member in a colony of bees; and as she is the mother of every bee in the colony, upon her depends the prosperity of the colony and the success of the apiarist. The attempt to give every detail incidental to queen-rearing, in a single essay, meets with an obstacle. Either we must abridge until the charm is lost entirely, or, if we would specify and portray, many essays would be necessary ere the subject is exhausted.

For a number of years I have reared queens for sale—not that the business has proved very remunerative, but because I love it. There is no part of bee culture that is so fascinating to me as that of queen-rearing. There is a charm about it that stimulates my enthusiasm from the beginning to the end of the season.

The careful breeder commences in early spring

by watching his queens and studying the desirable qualities of each one selected the previous year for breeders; and this watching and selecting continues throughout the entire season; and if the desire of the apiarist is to improve his stock from year to year, much care and judgment should be exercised in making selections. The simple fact that a queen's workers all have three bright yellow bands does not, in my estimation, qualify her as a desirable breeding queen. This *one mark*, however, is, I fear, too often the only one sought for by many bee-keepers as a sure mark of excellence.

In selecting a queen for breeding, I not only want her to produce workers that show three yellow bands—dark yellow or light brown preferred—but they must be workers that have a large robust body, with large wings covering the entire abdomen. I like to see bees with large broad abdomens, well rounded out, and full down to the extremity, rather than to see bees with slim delicate forms. I also want bees that are good honey-gatherers, good comb-builders, and that are not inclined to brace-comb building, and that are little inclined to swarming; that are quiet, and adhere well to the combs when being handled; and, withal, I want bees that will withstand our severe northern climate.

To produce a strain of bees with all these desirable qualities is not an easy matter. It requires years of watching and selecting, working first for one desirable point and then for another. But if we could have full control of the mating of our queens we could then improve our bees much more readily than now. As it is, we must test our queens at least two seasons to ascertain whether *their* daughters will produce workers that meet our wants. When we get such a queen we have one that is very desirable for breeding purposes.

I have often had queens that I had watched during the season, and in the fall registered them as "good," and in the spring following I would discard them for breeding purposes, owing to some defect in their wintering or springing. Therefore we should make every effort possible to place the honey-bee higher up on the scale of perfection; not only that we ourselves may reap the reward of our labors, but that those who come after us may be benefited thereby.

The person who undertakes queen-rearing as a specialty should be possessed of a very patient and persevering nature, as the business is complicated, and is accompanied with many reverses and disappointments. Were I to designate who should breed queens as a specialty, I should say at once the ladies, because they, with their delicate, womanly tenderness and gentle natures, are better adapted to this light and interesting work than are the men.

Queen-rearing is a business that requires close attention and much study. First, we must prepare our bees for cell-building and watch their construction from first to last, and prune out all inferior cells; and when completed, and of proper maturity, they are to be removed, and either given to nuclei where the young queens will hatch, or transferred to the nursery, where they will as readily hatch as in a nucleus or in a colony of bees. These cells should be removed and transferred at the proper period of maturity, or disappointment and loss will be the result.

I have found that the best time to transfer queen-cells from the builders to the nursery is when they have reached the 12th day from the egg. I have successfully transferred them at eight and nine days; but unless the weather is favorable, and great care is taken in transferring, failure is liable to follow.

After the cells are introduced into the nursery they are placed in a strong colony of bees that are run for extracted honey by setting the nursery in the upper story in place of an extracting comb. This colony may have a laying queen, which may have perfect liberty to occupy the upper story if she wishes. Together with this nursery filled with completed cells I have set by the side of it combs with cell-caps and cells ready to be capped, where they were completed the same as though they had been given to a queenless colony. I have managed in this way without the use of excluding honey-boards. Yet I would advise the use of excluders for this work, and I would also advise the placing of a card of hatching brood near the nursery in order to hold the hive bees in the upper story cold nights, as otherwise the cells or young queens might suffer from a low temperature. It is also advisable, during a dearth of honey, to feed the young queens as they hatch in the nursery. But if honey is coming in plentifully, the bees will feed the young queens, no matter how many there are. All will be cared for.

In rearing queens for sale, as well as for my own use, I aim to breed from my very best mothers, such as have given me the best results the previous year. I believe we should rear queens with as much care and judgment as in breeding farm stock. Although in our ignorance we can but dimly comprehend the wonders in nature, yet we should make every effort to progress. Notwithstanding I rear queens for sale, I would advise all who can to raise their own queens as much as possible, rather than buy them, as there is a time in every well-managed apiary when queen-cells are plentiful; and by selecting from the best colonies, the bee-keeper can, with very little labor or experience, rear his supply of queens, and at the same time experience much pleasure in so doing. But to rear queens on a large scale is another thing altogether, as it requires a large amount of fixtures, and no little experience, to keep a supply of queens on hand, which is necessary to make it a success.

SHIPPING QUEENS.

I have found that the best time to ship queens long distances is when they have been laying not longer than five days. Such queens will endure transportation much better than those a little older. But if kept until after a certain period, when they are somewhat reduced in size, they can then be shipped with safety. Queens one or two years old are liable to get injured in transit if shipped when full of eggs, because of their being tumbled about in the mail-bag, and also by being so suddenly deprived of the opportunity to lay eggs; and surely this of itself must be very injurious.

I have oftentimes selected what I believed to be extra good queens, to be sent to some person who ordered queens to breed from, and which were from necessity sent when in this delicate condition, a few of which would be reported as worthless; for, after being introduced, they would lay but a few eggs and then die, causing both the buyer and seller much disappointment and vexation.

I have decided that, in the future, I will use my own judgment as to the proper time to ship valuable queens. Therefore my advice to all buyers is,

order early, and allow the shipper to decide when to ship.

In conclusion I would say, let us climb up higher and acquaint ourselves more thoroughly with the laws of nature, and take advanced lessons in the college of the universe; and what we do not know now we may know later on. Therefore let us reach out for the truth, and hold fast to it. Yes, buy it with our own exertions; then we shall know its worth; and while here in council let us learn from each other such lessons as will aid and assist us in solving some of the mysteries of bee culture.

Bristol, Vt., Mar. 11. A. E. MANUM.

HORIZONTAL VS. PERPENDICULAR WIRING.

FRIEND HILTON INDORSES ERNEST.

WHEN I read the foot-notes to friend Foster's article, I said, "Good for Ernest." With all due reverence and esteem for our friend and benefactor A. I. Root, I do like to see a boy step out of his father's well-beaten path. This, Ernest has done in declaring for horizontal wiring. Of course, he thinks he is right. Here I admire him again. The plan as represented in friend Foster's frame has always seemed to me like "excessive wiring;" and ten years ago I adopted the horizontal plan, and have always wired in that way. I think three wires are better than two, but I have hundreds of frames wired with only two wires; and if numbers add to testimony, I can give you the names of at least 25 within a radius of 25 miles of here who wire in the same way.

I certainly think it has advantages over the perpendicular wires. I think we all agree that foundation should be well fastened at the top; but in cases where it was not well fastened at the top, and with perpendicular wiring, it has slipped down the wires in hiving full swarms on full frames of foundation. This has never occurred with me with horizontal wiring, even with two wires; and as for combs "bowing out," I do not know what you mean; but this I do know: I have 1000 frames wired with two horizontal wires filled with foundation, and drawn into combs; and if any one will show me 1000 better combs on perpendicular wires, I will make him a present of mine. Yet I would recommend three wires equal distances apart. I believe that 25 per cent of the combs I have on perpendicular wires, and the tin bar in the center, are imperfect. Either they are beveled off to the tin or they are not attached. Those who are in favor of "pop-holes" through the combs would be delighted with them. I don't want them. I think if I could not hold my frames together without, I should prefer a piece of wood just like the end-bar to the tin bar.

HOW TO WIRE.

Almost every one has his own way of piercing or drilling the holes through the frames; but after this is done and the frame is put together, lay it flat on the bench and drive a ⅝ wire nail near the upper left-hand hole, and one near the lower right-hand hole. Have your one-pound spool of No. 30 tinned wire secured in some way so that it will not snarl, yet unwind readily. Now thread the wire through the two left-hand holes back through the center holes, and up through the two left-hand holes, just enough to wind around the partly driven wire nail. Now drive the nail down, thus securing one end of the wire. Now place the upper end of the frame against a large nail driven into the bench; with the left hand, hold the frame securely against the nail; and with the right hand draw the wires until you spring the end-bars a little; and if you know how to play on a three string dulcimer, it is in tune. It seems reasonable to me that this arrangement throws the weight on the end-bars, and prevents the top-bars from sagging.

I shall read with interest the replies to your question, asking for facts from those who have used wires horizontally. The above are facts, as observed by me. GEO. E. HILTON.

Fremont, Mich., Mar. 22.

And I say, friend H., "Good for Hilton." Yes, I heartily agree with you in your thought, that every boy, sooner or later, should have convictions and opinions of his own. A boy who is a complete echo of his father, in every respect, would not be worth very much; and when your testimony comes in to back up Ernest, I am almost ready to abandon my position, and own up. But, how about the following letter from another friend? Read that.

HORIZONTAL WIRING PREFERRED.

TIN BARS NOT ALWAYS OBJECTIONABLE, ETC.

I WISH to indorse what Ernest said in regard to horizontal wires, on page 199. If he will refer to GLEANINGS, 1888, page 685, he will find my wiring-device described, which, if used, will do away with the use of pliers to draw the wires taut. When drawn taut, the wires cut into the wood so that none of them are exactly horizontal. Dr. Mason's objection does not hold good with my manner of wiring, which is described in GLEANINGS, page 33, 1888. Perhaps with a heavy top-bar the diagonal wires and the tin bar are not needed; but with the common frame I should rather use them. I have experienced no difficulty by the bees not covering the tin bar. Not only do they cover it with full-length cells, but they raise brood above them. To make sure about this I have just been to the honey-room to examine the combs.

I have frames wired in several different ways in use, and I get the best combs with my manner of wiring—three horizontal wires, and the diagonal wires and tin bar. The latter are put in after the foundation is put in. I wish no perpendicular wires. When burr-combs are scraped off I often break the wires which show above the top-bar. Perhaps, as A. I. Root says, they could be let down into the wood; but I am afraid that it would not always work just right.

I see that the bee-keepers intend to do away with burr-combs. I sincerely hope that they may. I have used the slatted honey-board extensively, and I can not see that the break joint does away with the burr-combs any more than those made of slats of odd width, although the first season that I used them I thought they would. By the way, I believe one season's success with a hive-fixture does not fully establish its usefulness.

It seems to me that any spacing attachment to the frames, whether of wood or metal, is objectionable, on account of extracting. I believe that staples driven into the brood-nest end are about the simplest spacer we can get; but, do we want frames at fixed distances when not hauling them? I sup-

pose that each one must settle this for himself. At present I am sure that *I* do not.

I have used hives with 1½ inches for each frame almost entirely in the past, and I am entirely satisfied that 1⅜ in. is the proper distance from center to center for brood-frames. In the extracting super I wish 1½-inch spacing. With the hive I use, the difference of spacing is easily obtained, and is no objection. I hope to hear from others in regard to wiring, as that has been somewhat of a hobby with me.

CHAFF PACKING AND DEAD-AIR SPACES.

I was much interested in the answers to Question No. 156. It is a question which I have spent considerable time discussing, and experimenting on. I have hives packed with six inches of chaff, and many packed with four inches; also some with only two inches; and I am firmly convinced that two inches of chaff packing around the brood-nest is a great plenty. Allow me to modestly state, that I have lost only one colony of bees in wintering, in all my bee-keeping experience. That colony died this winter.

I have two hives that have only an inch dead-air space around the brood-nest. The hive is made of good material, and well made. I have wintered bees year after year in those hives, and they have come through strong in numbers and stores. They have never failed to give me a fair yield of surplus honey.

Now, I do not give the hives the whole credit; but I am certain that no packing is needed if *one* or both walls of the hive are close jointed. It seems to me that the same principle applies to hives that applies to houses. However, I shall still pack with chaff or straw, because my hive material is narrow; but in future I shall use only two inches of packing. I use the Hilton chaff hive, and winter outdoors.

Fremont, Mich., Mar. 20. WM. E. GOULD.

Friend G., I am very glad to have you put in a good word for tin bars. I know the bees do sometimes leave them uncovered; but during a good flow of honey we succeed, usually, in getting bees to rear brood right over them, as you mention; notwithstanding, I should be glad to get along without them if we can. I feel sure that the horizontal wires would do nicely with tin bars, as you suggest; but I am not so certain that the horizontal wires alone are going to answer. See the letter below, from another friend, on this matter.

WIRING FRAMES.

IN FAVOR OF THE PERPENDCULAR PLAN.

I HAVE just read with a great amount of interest Mr. Foster's method of wiring frames, and also your remarks thereon; and if you can find space for a few lines, I should like to add my experience also.

To begin with, I am a great admirer of wired frames, notwithstanding all I continually read regarding the "useless and needless expense" of so doing. It is possible, however, as I have not used any quantity of unwired combs, that I have acquired a clumsy fashion of handling such, that occasionally causes accidents, which do not take place with wired frames, that I can not be induced to go slow enough to prevent, and therefore my adhesion to something substantial.

Well, I have tried all systems in order to make the labor and expense as little as possible; and for vertical wiring I now prefer, and will use no other than eight wires for the standard Langstroth frame. I also use a wire upright, to prevent the bowing-up of the bottom-bar (I don't like the tin bars for the reason you give); and as I use a ⅝ top-bar I see no use for the two diagonal wires. My preference for the eight wires is because I have no trouble with wavy combs; and when I imbed a sheet of foundation in such a frame, I know I shall have no further trouble with it.

Often, after having wired until I was tired, I would sit down and think that no other plan would work as well; and you can therefore imagine what a relief it appeared to me when I noticed in the Revised Langstroth that the horizontal plan was a success with them. Accordingly I lost no time in preparing several hundred frames for the past season's use; but instead of putting in only three wires I put in four, thinking that, if three were good, four might be better, and might prevent any bulging or curling of the combs, should there be any tendency in that direction, as I must confess I was a little afraid there might be. The wiring was perfectly done, and all were as taut as a fiddle-string, and, as with all other things that pleased me, I hurried away to show my good wife, whereupon she remarked, "Why, Frank, that looks ever so much nicer, and I think it can be done with half the labor and expense; and if you *will wire*, give this plan a trial at once, for it does seem as though it would work nicely." Now for the result.

I confess I could scarcely wait for the first swarm to come off, so it could be hived on the new frames; and when it did come, the progress was eagerly watched. I found things went on swimmingly with the upper half of the sheet of foundation; but a slight curve would appear between the second and third wire; while between the third and fourth, the bowing was not only quite perceptible, but altogether too much so for me, and, worst of all, the space between the fourth wire and the bottom-bar bore evidence that the foundation was bound to take a trip to the top-bar, so badly was it curved in an upper direction. This one example did not, however, discourage me; but after hiving about a dozen more swarms I concluded some other plan would have to be followed, and I therefore resorted to my old method; but wishing to use these frames, I placed them in the surplus apartment, and found less trouble than when hiving bees directly on them, but still sufficient curving to cause me to dispense with that method until I had received more light on the subject.

Now, friends, can you offer any solution to this difficulty with me? The foundation was made by a practical man, on a Given press, and the hives were all protected by shade-boards, *a la* Heddon. Would the result have been different had the foundation been made on a Root or Dunham machine? or do you think I made a mistake in putting in four wires, instead of three? Any suggestions will be thankfully received through GLEANINGS.

Stratford, Ont., Apr. 15. F. A. GEMMELL.

Friend G., we can not solve your difficulty, any more than to suggest that the Given foundation may have had something to do with it. We know this, that foundation with good high walls did not trouble nearly

as much by sagging when we used foundation without any wires at all; and I believe that foundation made on the Given press seldom has as high and perfect side walls as we now get by the use of rolls. I tried horizontal wires years ago, but had something of the same experience you have had. I decided they were not what we wanted. With a heavy top-bar, however, and a wire to support them midway, attached to the top-bar, they may answer all right.

IN FAVOR OF HORIZONTAL WIRING OF FRAMES.

I have just read friend Foster's article, on page 198, March 15th, in regard to wiring frames; also Ernest's and your foot-notes to the same. I wish to say I agree with Ernest exactly in regard to wiring frames. If I remember correctly, friend Vandervort, the foundation-mill man, when I visited him six years ago this spring, was wiring all of his frames horizontally, using four wires to each frame. His frames are nine inches deep. For five years all frames in which I have used foundation have been wired horizontally; and after five years' experience I could not be induced to wire upright. It is too much work, and the tin bars are a nuisance. My top-bars do not sag, and the horizontal wires hold the combs straight and true in the frames. I have hundreds of such frames in use, and they give perfect satisfaction. Friend Root, when you get your mind set you stick "like a dog to a root;" and it seems hard to get you out of a rut without taking a wheel off. Where the foundation is light, running 7 to 8 feet to the pound, it needs four wires; with foundation running 5 feet to the pound, 3 wires are plenty. GEO. A. WRIGHT.

Glenwood, Pa., March 22.

Very good, friend Wright; but I have read the above carefully twice over to see if you said any thing about the size of your frame. I am well aware that horizontal wires answer nicely for a frame like the Gallup, or even the American or Adair; but my experiments with horizontal wires in the L. frame indicated that the stretch was too long unless there were a support of some kind in the middle. Ten or fifteen years ago a good many of the friends of GLEANINGS threatened to give it up unless I could get over changing my mind so often, and recommending something else. In view of this you pay me a very great compliment. The fact is, I have seen many troubles come from being in haste to change to something else.

WIRING FRAMES WITH STAPLES AND HOOKS.

I think there is altogether too much fussing in Mr. Foster's method of wiring frames with thick top-bars (GLEANINGS, Mar. 15, page 198), so I propose to tell you how I do it. Instead of boring holes in the top-bars I drive double-pointed tacks in the under side, just where the holes would come. The tacks are driven down pretty close, leaving just about room enough for the wire to pass through. After the frame is all wired, and the tin bar sprung in place, the tacks are driven down close, drawing the wire still tighter. Care should be taken that the wire is in the center before the tacks are driven down close. The diagonal wires, after passing through a hole in the upper end of the end-bars, are looped over wire nails driven in the end-bar, and returned through the hole; then proceed as in wiring an ordinary frame, passing the wire through the first tack, down through the bottom-bar, then up through the next tack, etc., until the frame is completed. THEO. JENNINGS.

Port Chester, N. Y., Mar. 24.

We have tried the double-pointed tacks to a limited extent. It is true, that, after threading the wires and drawing moderately tight, you can stretch the wires taut by driving the staples further into the wood, and this certainly is a nice feature; but it takes a good deal of time to properly space and drive the staples; and piercing the wood is vastly quicker, and, of course, cheaper. We can thread holes in nearly the same time it takes to thread staples. If I did not use pierced bars I should use wire nails, which, after being driven into wood, are bent with round-nosed pliers into the form of a hook. The wire, instead of being passed through holes, is simply caught on to the hooks. They can then be stretched by driving the nails further into the wood. Dr. Miller wires all his frames thus.

RAMBLE NO. 24.

A VISIT TO THE WESTCOTTS; ANOTHER NOON SERVICE IN A FACTORY.

A FEW of those quiet bee-keepers who are never seen in print reside in Fair Haven, Vt. Mr. Proctor, of this place, made quite a business of raising queens, making foundation, and producing honey. His health failing, he advertised his bees for sale at auction in the spring of 1889; and though the Rambler did not attend the sale he learned afterward that the auction method was a failure. Only a few colonies were sold, at $4 00 each, thus proving that, even in Vermont, bees in good chaff hives are not in as much demand, and have not the certain value, that is attached to other farm stock.

The person engaged most extensively in honey production is E. L. Westcott. At the time of our call he had over 150 colonies in two apiaries, all in Bristol hives, or a modification of them. His locality is good for raising a fine quality of both comb and extracted honey. Much honey is sold in the home market. The slate industry fills the town with a class of laborers who are free to spend some of their earnings for the sweets of the bee-hive. We find such a class of people better to deal with, and larger purchasers, than the wealthy people. They will buy the cheaper grades of honey, and consume more of it. The senior Westcott is an extensive farmer, and has had a varied experience. The dairy business had been tried, and, after being tied, as it were, to a cow's tail several years, he sold this kind of stock and purchased sheep. Scab, foot-rot, dogs, and cheap wool, caused another change; and at the time of our visit, horses, both fast and slow, were being bred. His pet colt was valued at $500. Others, we supposed, were getting along to greater value. Experience and sensible methods are employed in his farm operations. Agricultural journals are of little value. *The Cultivator* had been taken thirty years; and the only idea of value learned in all that time was how to break up a sitting hen. Put a chestnut-burr in the nest, and it is

a sure remedy. The hen dislikes to sit on it; and when she gets uneasy, the burr goes with her, and she becomes so disgusted with this sort of egg that she gives up sitting. Our stop was short but very pleasant with the Westcotts.

THE BLACKSMITH WHO OWNS THE RICHES OF THIS WORLD AND THE WORLD BEYOND.

After leaving them we met an old friend, who, many years ago, wielded the blacksmith's hammer in our native town. He is now a resident of Troy, N. Y., and has accumulated a fortune of several hundred thousand dollars, in the collar and shirt business. Meeting him was like meeting the breezes of sweet perfume from the sunny land.

"Why, no, friend Rambler," said he, "I never expect to die. All who believe in the Lord Jesus will not die. There will be only a change of existence. We shall only be called up higher." This man is not only ready to testify to the light within and to the hope beyond, at all times, but conducts his large business upon a Christian basis. His large factory, employing over one hundred people, of both sexes, is open to the influences of the gospel. A noonday prayer-meeting is held, and occasionally an evangelist is called in to speak to his people. He is interested in the welfare of all who work for him, from the best to the most humble; and it is needless to say that there are no strikes nor discontent in that establishment; and from what I have learned of him in Troy, Mr. Justus Miller, who started life an humble blacksmith, is universally respected by the good people of Troy. That there may be more such business men is the earnest wish of the

RAMBLER.

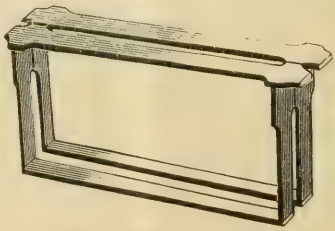
Friend R., it is rather pleasant to know that you have visited that great collar factory in Troy, N. Y. A niece of mine married a "runner" for this establishment; and as they recently paid us a visit I happened to know something about what you have been telling us. Surely, "godliness is profitable to all things." I am sorry to add, however, that, although the relative of whom I have been speaking commands a salary of several thousand dollars, and at the same time speaks with pride of the great business his employer has built up on such principles, he has not seen fit to put his trust in the "Lamb of God that taketh away the sin of the world."

THE HOFFMAN FIXED FRAME.

SOME OF ITS ADVANTAGES IN POINT OF CONVENIENCE; A GOOD THING.

As I have had considerable experience with different styles of brood-frames, and in moving bees during the past ten years, perhaps you would like my opinion in regard to the frame I use. After using the ordinary style, and the closed end, and modifications of each, for some years, I finally settled down on the Hoffman frame, and discarded all others. This compelled me to lay aside about 2000 frames which I had in use, and I have never regretted doing so, having yet to find a frame that suits me as well as the Hoffman. I prefer it for the following reasons: It is as firmly held as a closed-end frame, and yet is more easily manipulated. We can pick up and handle two, three, or four of them at a time, without jamming or bruising them in the least, and move any number of them to any part of the hive at one movement as easily as one. To illustrate: If we wish to take out a frame from the center of the hive, push a blunt knife down beside the frame wanted, and shove all the frames over a little at one movement; then we can lift out our frame with ease, instead of moving each frame a little.

One great point with these frames is, that, owing to their partly closed top and thick top-bars, but very little brace-comb is built above them; this is a great convenience. They are more easily covered with a quilt to keep the bees from going above. No bees can get into the rabbet to glue the frames down. They are as easily separated as the ordinary frame. They are always perfectly and accurate-



THE HOFFMAN FRAME.

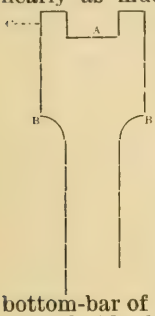
ly adjusted. We never have to go over the frames to space them right when we are ready to close the hive. We can pick up the hive at any time, and carry it about in any shape or position, and the frames will never move, swing, or rub against each other. It possesses all the good qualities of the closed-end frame, combined with the advantages of the hanging. To work nicely you can use a division-board or follower, which is removed first to give room to manipulate the frames—ten frames and the division-board nicely filling the Simplicity body; but we manipulate them nicely without this division-board.

Practical working will show many more advantages and good features of this style of frame.

Oneida, N. Y., Jan. 10. EDWARD B. BEEBEE.

You make a big point for the Hoffman frame, friend B., regarding the facility with which all of them can be shoved over at once to give room for the central or any other one. All fixed frames possess this feature to a certain extent, but not as perfectly. With ordinary hanging frames it is usually necessary to finger (i. e., space back)

nearly all the frames in the hive in the honey season, to get room to properly remove the central one; then after they are all put back, each one must be spaced over again. I have just one fault to find with it; and that is, its expense. In thinking the matter over, I find we can retain all the advantages you name for it, and yet cheapen it by nearly a half. If the end bars have projections there is no need that the top-bar have similar jutting points. The top-bar in the Hoffman, as illustrated above, costs nearly as much as the rest of the frame.



Make the top-bar $\frac{7}{8}$ inch wide and $\frac{3}{8}$ inch thick, and the end-bars with a recess as at A. This should be $\frac{7}{8}$ inch wide by $\frac{3}{8}$ inch deep. The top-bar then passes through A, and a wire nail, as C, driven through holds it secure. B B is recessed out, and this makes the narrow part $\frac{7}{8}$ inch wide. The broad part is $1\frac{3}{8}$ inches wide, scant. We now have a frame with a top-bar and bottom-bar of $\frac{7}{8}$-inch stuff, and only the end-bars of wider lumber. But, how about burr-combs? We can use a thick bar if we choose, just as easily as not; or, what seems to me would be better, a double top-bar, as was illustrated on page 204. The Hoffman frame, made as I have said, with double-bar, ought not to cost more than $2.00 per 100; or, without the extra bar, $1.75 in the flat. I omitted to say, that this frame should be used on tin rabbets, to be used to the best advantage. Now, while this frame may seem to be *the* thing, don't go and order a whole lot of them without first trying eight or ten hives of them at first, if you like them. It is possible there may be some serious objection to them, so let's go slow. But, hold! Here is another friend who is very enthusiastic over them: E. R.

THE HOFFMAN FRAME.

I use a hive that resembles your new Dovetailed hive in principles and some features, same dimensions, 8 Langstroth frames. From experience I know that the new hive would suit me better than any I have seen, and I have at least seen and examined closely every hive that has been before the public, with the exception of Mr. Heddon's new hive, composed of shallow cases. There seems to be but one feature lacking in the Dovetailed hive; and that is, a frame suited to the business for which this hive was designed; viz., convenience in handling and shipping, and adaptability to out-apiaries where the hives have to be moved from place to place frequently. As I said before, I have handled many hives of bees during the past 12 years, in all kinds of hives, and with all conceivable kinds of frames and fixtures. Of all I have seen, none ever suited me quite as well as the Hoffman-Langstroth frame, introduced to the public by Mr. J. H. Nellis, in *Bee-Keeper's Exchange*, Vol. I., No. 3, Mar., 1879.

This frame I have had in use from that date to the present time, and am more than pleased with it, and think it embraces more desirable points than any thing else I have ever seen. I find in the use of this frame very little trouble from brace-combs, a point which I see is under discussion—never any thing of that description unless the space above brood-combs was more than $\frac{3}{8}$ inch space. The top-bar of the frame is about $\frac{5}{8}$ inch thick.

Now, friend Root, I have no ax to grind; but I would suggest that you try a few frames; and if they don't suit, why, let them go along with other discarded traps. I never have found any thing so convenient for handling a full colony of bees as this frame, in looking for queens and handling combs. The most that can be said against this frame is the expense. For moving bees from place to place, and have them bear rough handling, they are simply perfect. I use them with plain wood rabbets. ADIN STONE.

Vienna, N. Y., Feb. 8.

Is there any one else among our readers who has tried these frames?

FURNITURE NAILS AS DISTANCE-KEEPERS.

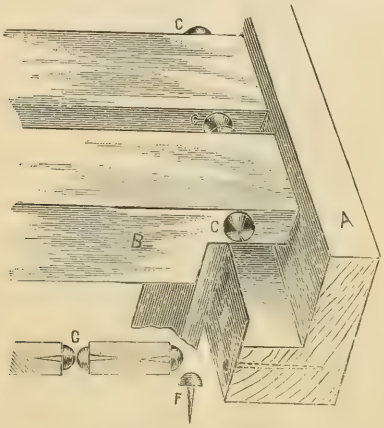
FURTHER SUGGESTIONS FROM N. T. PHELPS.

YOU have put your thumb on communications in regard to thick top-bars, and I expect in the next issue of GLEANINGS to see that you have put your other thumb on distance-keepers. There are, however, many suggestions that might still be made in regard to distance-keepers that will be of use to some portion of your readers. If thick top-bars and accurate spacing are to be used to prevent brace-combs, some sort of distance-keeper is necessary. It will take several kinds to please all, just the same as it does with every thing else. Some will like your castings best; some, staples in the top-bar; others, staples in the rabbet, and so on. Now, I could not tolerate staples in the rabbets, because I frequently, in spacing frames, shove or slide half a dozen or more along on the rabbets, to the position they are to occupy. In looking over combs I replace them in the side of the hive toward me; and when the furthermost one is looked at I shove all back into their place at one push. Every one has his mode of management, and so will see some objection to any keeper. Those working for comb honey will find some distance-keeper especially convenient, and careful extracted-honey producers will not be very much afraid of a little metal on the extreme corners of their frames. There are some who do so much more business than the rest of us, and do it with such a rush, that any kind of projection, especially a metal one, will be objectionable on their extracting-frames.

In order that all may choose a distance-keeper to suit themselves, the writer would like to suggest a cheap article that can be used, a sample of which I forward with this article. They can be bought for at least $1.75 per 1000 at retail, making them cost about seven-tenths of a cent per frame. This, I should think, would be cheap enough to satisfy nearly all; and if they are placed at the extreme end of the top-bar, it looks as though it would make a pretty good "careless man's" distance-keeper. With the thick top-bar, and the keeper placed at the extreme end of the bar, please observe the distance from it to any honey to be uncapped.

These are well adapted to the thick top-bars that are plump one inch wide, and are to be spaced exactly five-sixteenths of an inch apart. They will be

excellent to use where one wishes to try a few thick bars by reinforcing some of the ordinary bars already in use, with strips of veneering. They can be used on all four of the corners, when they will cost about $1\frac{4}{10}$ cents per frame. They are called "furniture nails," and are No. 9. Be sure to get No. 9, if you wish to space five-sixteenths of an inch apart. Other numbers will space slightly closer. I want to ask Dr. Miller to try a few of them on his



PHELPS BRASS SPACERS.

veneer-reinforced frames, and tell us how he likes them for moving bees. They can be pushed in by making a wooden punch with a concave end, and need not be struck so as to jar the combs at all. Small wire nails to fasten on the veneer can be pushed in in the same way, and no driving or jarring of the frames. If the uncapping-knife should strike these brass heads it would not injure it much, and it would have to hit pretty close to the frame to catch on to the nail at all; so the danger of dulling the knife is small.

In closing I wish to say that there is no patent on it, and all criticisms will be taken as a matter of course, and I shall not pose as a martyr if somebody happens to have thought of them before I did.

Kingsville, O., March 10. N. T. PHELPS.

Here is what C. C. Miller says of them, who writes to us after receiving samples, accompanied with a letter from friend Phelps:

I must say that these furniture nails of Mr. Phelps strike me *very* favorably. Have your castings any advantage over them except the single one that they make a fixed distance from center to center of top-bar while these nails make a fixed distance *between* frames? After all, the latter is what we want. These can be more easily applied to frames in use. In fact, you don't need to shake the bees off.

In reply to friend Miller's question I would say that the Van Deusen have the advantage of being reversible and a little more stable. The round smooth heads of the furniture nails would be liable to slip by each other when pressure is exerted. In point of cheapness, the brass nails can hardly be beat, unless by the staple first suggested by Mr. P. on page 98. Yes, both of his arrangements can be used on frames already in use. No, it is not even necessary to shake the bees off. The round-headed nails could be easily driven home with a kind of wooden pliers that might easily be extemporized for the purpose, and thus do away with all jarring from pounding. After all, it is hard to say whether any or all of these spaces will be accepted by bee-keepers. But there is a growing demand for fixed distances; and with the arrangements that have been suggested we can all experiment and decide for ourselves this summer. While I am about it I might say that the thick top-bars which we are making are like B, shown in the cut, without the spacers, the end-bar being nailed on as shown. F is a reduced figure of the nails. The heads are of polished brass. C shows how they come in contact. E. R.

FIXED DISTANCES.

THE NEED OF THEM, ETC.

LAST year there were several parties who wanted me to look over their bees. I found them in every conceivable shape—some in Langstroth hives, spaces cut in hives for frames to rest in, some with slots cut at fixed distances, some in home-made hives, with no spacing. I found, in some hives, frames touching each other; others, two inches apart. One man with seven swarms had not a single straight comb in the hives that could be spaced. Under such circumstances it would be impossible to handle successfully, or to space up combs the proper width, or to put such frames in hives that are spaced.

On page 172 of GLEANINGS (frames at fixed distances), I have tried that plan without success. The article on p. 199 is just as bad, as they both hold frames at fixed distances in the hive. My experience is, that all spacing must be on the frames. The article on page 98 illustrates my plan exactly, such as I use in my hives, and some of my neighbors have taken up the same plan My frames are all spaced with staples which are driven in exactly like the engraving on page 28, leaving the staples just ¼ of an inch out of the wood; and in addition to this, at the center of the bottom-bar, I nail on a small block, ¼ in. thick, ⅜ wide, and one inch long. This gives the exact width from center to center, $1\frac{3}{8}$ or $1\frac{7}{8}$, and exactly ½ inch between frames. As you will perceive, they can be spaced any width that is needed to suit the notion of some; i. e., that bees want more space in winter, but can not be closed together less than the required space, and no bees can be jammed in closing the frames. By placing a dummy-board at one side, and keying up, the hive can be turned completely over without moving a frame or injuring a bee. The additional cost to each hive is two cents. D. NOBLE.

Clintonville, Wis., Mar. 31.

Quite possibly you are right, friend N., in saying that we want the spacers attached to the frames and not to the rabbets. In buying up bees last spring I noticed just the kind of spacing you describe. If beginners *need* spacers, and many veterans are either using fixed frames or desire them, it is time we were giving the matter thoughtful consideration. I am glad to hear that you like the staple. Do you find that they interfere seriously with the uncapping-knife?

APPENDIX TO THE A B C OF BEE CULTURE.

For the 42d Thousand.

Again I have called upon our friend and correspondent, Dr. C. C. Miller, of Marengo, Ill., to review this edition, just before the final form goes to press. It is to be observed, that he has commented on some things in the body of the work, and suggested some of the later developments which have come up since some of the forms were printed. These latter, though promising much, should be put in the appendix because they have not been sufficiently tested to warrant giving them such prominence and indorsement as the body of the work gives to devices and methods that have been most thoroughly tested. I have also made some additions. His matter will appear in solid type, while mine will be, as usual, like this. The doctor begins as follows:

PAGE 4.—AFTER-SWARMING.

Perhaps it is not best to leave entirely out of sight the old-fashioned way of returning all swarms that issue when no more swarms are desired. It is a troublesome, but entirely effectual way, if persisted in, and was practiced with box hives before the advent of the movable comb. All that is necessary is to put the swarm back into the parent hive as often as it issues; and when only one young queen is left alive in the hive, the swarming will cease. Sometimes putting back an after-swarm once is all that is necessary.

PAGE 12.—ANTS.

There is a kind of large black ant that may be specially mentioned. These ants are troublesome, and sometimes even dangerous. They burrow in the wood of bottom-boards; and I have seen a bottom-board that looked sound on the exterior, so thoroughly riddled by these pests that a very little touch would make it crumble. Think what a time you might have, if such a bottom-board should crumble while being hauled on a wagon!

PAGE 13.—APIARY.

One objection to any apiary made symmetrical in form, no matter how beautiful in appearance, is, that the bees do not so readily find their homes when they have no distinctive landmarks. On this account some think it well to plant trees, if none are already growing; and a studied irregularity in their positions—copying after Nature's planting—makes each spot in the apiary different from every other spot, so that no bee need have any difficulty in going with unerring certainty straight to its own home. A natural linden grove is a fine site for an apiary. Instead of being placed in the center of the apiary, workshops are nowadays generally placed to one side. One reason for this is, that it is not always convenient for a team of horses to be driven into the center of an apiary to reach the shop.

PAGE 20.—MOVING WHOLE APIARIES NORTHWARD.

Within the past few years some progress has been made in this matter, and it now seems that those who have had sufficient experience may successfully bring bees from the South to the North in time to profit by the clover and basswood. Byron Walker, of Capac, Mich., can not successfully winter his bees, on account of unwholesome food gathered in his locality, and he has made a practice of buying up bees in the spring in the South, and transporting them by rail to the North.

PAGE 26.—ARTIFICIAL SWARMING.

Since the increase of out-apiaries, advantage has been taken of the fact that, when a frame of brood and bees is taken a considerable distance, the bees will stay wherever they are put. Suppose you have a hive full of combs, each comb having a queen-cell, as explained already. If this hive be taken to an out-apiary, each comb with its queen-cell and adhering bees may be put into a separate hive, the hive then filled with frames of foundation; and, if done early enough in an extra good season, each nucleus thus formed will grow into a good colony during the course of the season, with no further care than to see that it has succeeded in getting a laying queen. It is better, however, to take along, at the time of hauling away, a second hive full of brood and bees, but with no queen or queen-cells, and give to each nucleus one of these combs with adhering bees. Then you have a fair chance of success in any ordinary season.

For those who use large hives, and work for extracted honey, there is a very simple way to double the number of colonies, which has worked well in the hands of some. When the time comes for surplus storing, put a queen-excluder on the hive, and on this put a second story filled with frames of foundation, or, better still, empty comb, then a third story also filled in the same way, except that you place in the third story one or two combs of brood taken from the lower story, together with the adhering bees.

Some young brood and eggs should be in the comb or combs of brood placed above. Be sure that the queen is left in the lower story. Let there be an entrance in the upper story, not necessarily very large. In about three weeks a young queen will be laying above, and at the close of the harvest this upper story will contain a strong colony, which may be put into a separate hive, and a bottom-board may be put under it, so as to stop all communication with the lower story.

PAGE 30.—BARRELS.

At present the square tin cans described under EXTRACTED HONEY are preferred to barrels for shipping, as being cheaper and in some respects better.

PAGE 38.—HOW TO KEEP EMPTY COMBS.

When combs are left in spring, after the death of the bees in a hive, there is no safer place to put them than in the care of a good strong colony. Brush off the dead bees and put the combs in a clean hive on the stand of a strong colony, and then place the colony *over* this hive of empty combs, so that they will be obliged to pass through the hive of combs to go in or out. In other words, give the bees no entrance, except that of the lower hive, allowing free communication between the two. The combs will be kept free from worms and mold, with no care whatever on your part, except to keep the entrance so small for two or three days at first that robbers shall not trouble.

After the weather has become warm, three or four stories of empty combs may be piled on the top of a hive containing a colony, with a queen-excluder between, and a frame of brood in the upper story to make sure that the bees traverse all the combs.

PAGE 56.—SWEET CLOVER.

It is now well established, that cattle do *sometimes* eat sweet clover green, although some say it is objectionable as pasturage. Prof. Tracy, of the Mississippi Agricultural College, speaks highly of it as a hay plant, but says, as do others, that stock must *learn* to eat it. Livingston's catalogue says it is "quite valuable for soiling." Its general character as a good honey-plant is well established, and it may be well worth while to give it a thorough test as a forage-plant.

PAGE 64.—WIRING BROOD-FRAMES.

If thick top-bars come into general use, as now seems possible, the necessity for diagonal wires and center-bars of folded tin will disappear. Indeed, even with a top-bar only $\frac{3}{8}$ thick, the diagonals and folded tin have been by some dispensed with. This saves turning the frame over to fasten the wires on the second side.

PAGE 65.—STARTERS FOR SECTION BOXES.

Many bee-keepers want the starter to fill the section as nearly as possible, leaving a space of only $\frac{1}{4}$ or $\frac{3}{8}$ inch at the sides and bottom. Even with so large a starter as this, the bees sometimes fail to fasten the comb at the sides and bottom. It is especially desirable to have it fastened at the bottom, to prevent breaking out in shipping; but even if long enough to touch the bottom, the bees do not always finish it down. Perhaps a safer way is to fasten a starter at the bottom, $\frac{3}{4}$ inch wide or deep; then fasten at the top a starter $3\frac{1}{4}$ inches deep. This makes a sure thing of having the comb fastened to the bottom-bar. Such starters properly fastened with a Clark fastener have been safely hauled on the trot to an out-apiary. If cut $3\frac{7}{8}$ instead of $3\frac{1}{4}$, the swing, and the consequent liability to fall out, would be much greater.

PAGE 66.—FASTENING FOUNDATION STARTERS WITH THE CLARK MACHINE.

Instead of using a small paint-brush to moisten the presser-tongue, make a little paddle, say 8 or 10 inches long, $\frac{1}{4}$ inch thick, and 1 to $1\frac{1}{2}$ inches wide. Nail upon one side of it a piece of felt, or two or three thicknesses of old soft cloth, equal to the length of the presser-tongue, then whittle off the handle end, saturate the cushioned part well with salt water, renewing it if it should get dry. To moisten the tongue, lay your paddle under it, press with the feet just as when fastening in a starter, and then throw the paddle in your lap till needed again. This takes less time, and is more thorough, than to use the brush. You may need to moisten the tongue for each starter, or you may need it only after fastening several starters. It is a good plan to have a little tin dish of salt water in which the tongue may be so set as to keep in soak over night, so as to be in good trim for next day's work.

PAGE 68.—THICK TOP-BARS VERSUS HONEY-BOARDS.

The year 1889 started a very full discussion of the means of preventing brace-combs above brood-frames, and it transpired that quite a number had for years succeeded in preventing brace-combs, without any honey-board. Some claimed partial or entire success with top-bars $\frac{7}{8}$ square; some with top-bars $\frac{3}{8}$ thick, but wide enough to leave only $\frac{1}{4}$ inch space between them, while some laid great stress on the matter of keeping a very small space between top-bars and sections. In general, bees build brace-combs above or between top-bars, if too much room is given; and if too little is given, then the space is apt to be closed entirely. Taking all the evidence brought together, and sifting it out, there is at least great reason to hope for immunity from brace-combs by attending to the following requirements: The top-bars must be at least $\frac{7}{8}$ thick, and the space between the top-bars, as also the space between top-bars and sections, or whatever is immediately over the top-bars, must be, with some exactness, $\frac{5}{16}$ of an inch. This necessitates a top-bar of greater width than some would otherwise prefer. If the top-bars are spaced $1\frac{3}{8}$ from center to center, then, to have the space between them $\frac{5}{16}$, their width must be a little more than an inch. The year 1890 will probably settle the whole matter very conclusively, for so much attention has been given to it that doubtless thorough tests will be made by a great many. Notwithstanding the great usefulness of the slat honey-board in the past, it will be quite a step in advance if it can be laid aside. It will save expense, time, and trouble; for, no matter how clear of brace-combs the honey-

board may be on the upper side, there will always be found plenty of them between the honey-board and the top-bars, if the top-bars are not right. It is among the possibilities, that some device for keeping combs at fixed distances may come in vogue.

PAGE 69.—MEETING OBJECTIONS TO THE T SUPER.

Those who are advocates of the T super, meet two of the three objections in this way: If a T tin be put between the sections at the top, directly over those below, it is obvious that the spaces between each two rows of sections will be filled up, avoiding the large deposit of propolis sometimes made between the sections, and at the same time holding the sections perfectly square. This, however, will leave on the tops of the sections a line of propolis at the edge of each flange of the T tins, and this is worse in appearance than the same amount of propolis at the corners of the sections. A better and cheaper way is to use, in place of the T tin on top, a small wood separator about ¼ inch wide, and as long as the T tin.

To the charge that it is not easy to make the outside and central rows of sections change places so as to get the outside ones finished up, the reply is made, that, when the central sections are finished, they should not be moved to the outside rows, but taken out of the super, and that, when all but a few outside ones are finished, the super should be emptied and the unfinished ones put back.

PAGE 71.—GETTING BEES OUT OF SECTIONS; CAUTION.

Until you have had some experience, perhaps your safest plan is, never to set a super of honey by the hive. Sometimes it may be safe to let it stand there all day when the bees have more than they can do on the flowers; but, again, all at once it may start the bees to robbing, and demoralize them generally.

PAGE 74.—EMPTYING T SUPERS.

The machine for taking sections out of T supers, as shown on page 74, although its use is easily understood, is somewhat difficult to make. It requires nice adjustment to make it so that the super may instantly be placed exactly right over the bearing-board. The sections can be taken out with no other apparatus than the bearing-board, and, indeed, at times this is perhaps the better way. The operation is as follows: Place over the super a board about the size of the super—a flat hive-cover will do. Now turn upside down both super and board held together, making the super now rest on the board. Place this on a hive or box so as to raise it a foot or less from the ground. Place the bearing-board on the sections; press your weight on the center of the bearing-board, and then pound gently about the edges of the bearing-board until the sections settle down the quarter inch or so; then, placing the right knee on the middle of the bearing-board, lift the super rim off the sections. If this is done in warm weather when propolis is soft, it will not be as easy as it reads to start the sections out of the super. Propolis, when warm, has that aggravating quality that it will not be hurried, and you may pound hard enough to break the sections without starting them; but if you let them stand *long enough* they will fall by their own weight. So take it easy; turn around and sit down on the bearing-board, and meditate on the blessings you enjoy; and when you have sat and rested about as long as would be necessary to pound the sections loose with cold propolis, you will find that your sections have dropped without your noticing it.

PAGE 76.—USING UNFINISHED SECTIONS FOR BAIT.

Serious objection has been made to using as bait, or in any way putting back on the hive a section containing the least bit of honey left over from the previous year. The old honey is said to affect the new, and the empty comb is just as good for bait as if it contained some honey. In fact, the bees often, if not generally, remove the old honey before putting in new. Either let the bees empty the sections in the fall, if you want them for bait, or extract them and then let them be thoroughly cleaned *by the bees*. Better use up, as under the head of SELLING FOR LESS MONEY, all sections that have enough honey in them, and let the bees clean out in the fall those having less honey, and you will probably have enough for bait.

PAGE 76.—SEPARATORS.

Experience says, "Never use tin separators loose, as in T supers; and never use wood separators where they are to be nailed on, as on a wide frame. The objectionable curling of wood separators occurs only where they are nailed on, when shrinking and swelling makes them curl. Where placed loose between sections, as in the T super, the tin separator troubles by bending endwise, while the stiff grain of the wood prevents this, and, not being nailed, the wood separator can shrink and swell without curling, even if very thin. A *very* thin wood separator will not last many years, because the bees will gnaw it; but since they are made now so cheaply that it is economy to throw away the old glued ones and buy new each year, it may turn out that even as thin as 30 to the inch may be preferred. It is a fact, that a very thin separator is much tougher in proportion to its thickness than a thick one, because the grain of the wood does not break in slicing very thin.

PAGE 78.—NARROW SECTIONS.

One bee-keeper protests vehemently against saying any thing to encourage beginners in trying a variety of sections. He at one time, as an experiment, used sections of five different widths, and says no one who has not tried it can imagine the resulting annoyance. The beginner is pretty safe to adopt the one kind that finds favor with the majority of experienced bee-keepers.

PAGE 138. T SUPERS ON DOVETAILED HIVES.

It was at first thought that it would be somewhat objectionable to use on the Dovetailed hive a T super shorter than the hive. But it is found that they have been thus

used for years; and the question is even raised whether there is not an advantage in it. In very hot weather, when bees hang out at the entrance in clusters, if the super be shorter than the hive, so as to allow a space of ¼ inch at the back end for ventilation between the hive and super, the bees in such a hive will not be found hanging out. A curious thing is, that the bees never use this ventilating space as an entrance. If desired, this space can be closed by laying upon it a little pine stick, or the stick can be nailed upon the super by any one who prefers never to have the space open. Whether it be desirable or not to have the super shorter than the hive, the advocate of the T super says: "There are two things settled upon as standard—the L. frame and the 4¼ section. Both of these I must have, and I must have the best thing to hold each; and if they are not exactly of the same length, I'll adapt them to each other the easiest way I can. I have used T supers by the hundred, shorter than the hive, with no difficulty, and just for the matter of looks I do not propose to be satisfied with any inferior surplus arrangement in place of what I believe to be the best at present known, the T super."

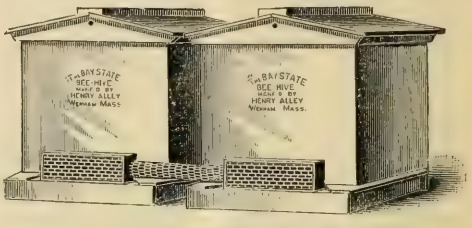
PAGE 274.—PREVENTION OF SWARMING.

As mentioned in Doolittle's comment No. 80, Hetherington, Elwood, and some others, have practiced caging or removing the queen during the honey harvest. Of course, no swarm will issue regularly without a queen in the hive; and if no cells are allowed to hatch, the prevention is accomplished. When the harvest has commenced, before giving the bees a chance to swarm, the queen is caged in the hive, or, perhaps, preferably given to a nucleus. If queen-cells are not already started they will certainly be started on removal of the queen; and if the queen is caged they will just as certainly be started in a short time. In any case they must be cut out before any possible danger of hatching out. If all cells are destroyed at the time of removing the queen, then a second time, eight days later, and a third time eight days later still, there will be no possibility of any swarming. The advocates of this plan claim that the bees that would be raised from eggs laid at the time during which the queen is caged or removed would be too late to be of any service in gathering the harvest, hence only consumers.

On the other hand, there are those who question whether the bees work just as industriously without a laying queen in the hive. One difficulty about the plan is, that it is about impossible to be sure that no queen-cell has been missed; and a missed queen cell gives rise to very undesirable complications.

PAGE 276.—AUTOMATIC SWARM-HIVING.

Henry Alley has invented an arrangement that is intended to hive a swarm of bees in an empty hive, and set them to work all right, even if no one is within a mile of them. A properly shaped queen-excluder connects the entrance of the hive containing the colony with the entrance of the hive to receive the swarm. When the swarm issues, the queen can not get through the per-



THE ALLEY AUTOMATIC SWARMER.

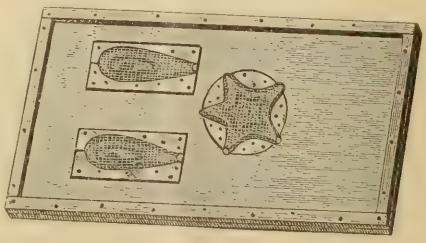
forated zinc, but can easily get into the empty hive, where she will be found by the returning swarm.

WOODEN BROOD-COMBS.

Brood combs of wood have been invented and manufactured by a Mr. Aspinwall, of Three Rivers, Mich. Cells of the proper width and depth are bored by a nicely adjusted gang of drills, and the whole coated with beeswax. The claim made for such combs (and they have been sufficiently tried to show that bees will accept and use them) is, that it makes a sure thing of having the brood-nest entirely filled with worker comb, there being no possibility of raising any drones, and that without drones no swarming will occur. It is asserted, however, by others, that absence of drones will not prevent swarming, and that drones may be admitted from other hives. As yet these combs have not been tested by a great many, and the difficulty of making any but one size stands in the way of any general testing.

PAGE 72.—RIDDING THE SUPERS OF BEES.

The Dibbern bee-escape, an engraving of which appears below, promises much. The cones, instead of being perpendicular, as in the Reese, are horizontal, so that they do not stick out in the way of the sections.



THE DIBBERN BEE-ESCAPE.

The horizontal escape is now being made so that it will drop down into a hole in an inch board, leaving both surfaces flat. We have tried it to a limited extent, and find that it will work very nicely. Its chief advantage, however, will be found in extracting. The escape is put between the body of the hive and super in such a way that the bees will pass downward into the brood-nest. If the escape be put on at night, the next morning there will be no bees, or, at most, very few,

on the combs. To extract, put a number of such bee-escapes on each hive the previous evening. Next morning remove the supers, or hives containing combs of sealed honey, and replace them with hives or supers of empty combs, then take the filled supers to the extracting-house, and extract them at your leisure. Observe that, with this plan, there is no smoking, shaking, nor brushing of combs, no stings, and no interference with the work of the bees. One bee-keeper, who tried it in 1889, pronounced it the "poetry of extracting."

ALFALFA, OR LUCERNE (*Medicago sativa*). At the present writing, May, 1890, there is considerable difference of opinion in regard to this plant, especially in reference to its adaptability to the average soils of the different States. In the great deserts of the West, California, Arizona, Idaho, and wherever irrigation is depended upon to raise crops, alfalfa is the great honey-plant —perhaps one of the greatest in the world— certainly *the* greatest for artificial pasturage. In the Great American Desert, where the weather is always favorable for the flight of bees, and where alfalfa is grown in fields of thousands of acres, the bee-keeper can hardly ask for any thing more. The irrigation needed to grow it for forage, makes the crop almost certain. As it is cut many times during the season, there is an almost constant yield of honey in the range of the bees' flight. We have reports already of not only honey by the *ton* but honey by the *carload;* and the quality is probably equal to any thing that the world has ever produced from any other source. In fact, it resembles so much a fine article of white-clover honey that it will probably sell in almost any market as clover honey, which, in fact, it is, as alfalfa is a species of clover. The cuts are copied from V. H. Hallock & Sons' (of Queens, N. Y.), seed catalogue for 1890. The large one, giving the size of the root, the way in which it grows deep in the soil, is probably exaggerated, although such plants may have been grown in the loose sandy soils of the desert.

We have tested the plant on a small scale on our own grounds, but gave it up, as it did not seem to bear honey with us. Very likely, however, it is because the amount planted was too small, and may be because other sources furnished so much honey at the same time, that the bees did not notice it. It wintered over without any trouble, and gave a considerable amount of foliage. In digging a cellar for one of our new buildings, a bed of it was torn up; but we found the roots down three or four feet in the soil. We have tried since, and it stands our winters here in Ohio without any trouble. We gather the following in regard to its cultivation, from a little pamphlet published by Hallock & Sons, 1889: It is better sown in drills, and cultivated, unless the land is

ALFALFA, OR LUCERNE, SHOWING THE WAY IN WHICH THE ROOT GOES DEEP IN THE GROUND, SEEKING FOR MOISTURE.

quite free from other seeds, and is in very fine condition. It can, however, be sown broadcast, the same as other clovers. In our locality it should be sown in the spring, or at least a sufficient time before fall so it may get root enough to stand being thrown out by the frost, especially if the ground is

clayey. After it gets a good start it can be cut every four or five weeks. It should be put on rich land, well drained. It will not stand too much water. This is indicated by its preference for the desert wastes in

ALFALFA BLOOM AND FOLIAGE.

the rainless regions. Some writers tell us that there should be a depth of soil above the rock, ten or fifteen feet, and some go even so far as to claim that the roots will go down in search of moisture as much as twenty feet. If sown early, and a good stand obtained, it may be cut the first year. The second year it yields two cuttings, and afterward three and four cuttings, in a season. It has been grown successfully in Wisconsin, but no report has been made of honey obtained from it there.

It yields from three to five tons per acre, and some reports go as high as eight or ten tons. It gives from three to five cuttings to the season, and, under favorable circumstances, even six or seven have been made. For drill planting, 10 or 12 lbs. of seed per acre is sufficient. For broadcast, however, 15 or 20 lbs. is better. For the best hay it should be cut when blooming commences. If raised by bee-keepers, however, they will prefer to leave it until the bees have made a pretty good crop of honey from the bloom. The hay is said to be better, however, when cut about as soon as it is in full bloom. All kinds of stock, even poultry, take to it with avidity at first sight. For soiling purposes it is probably unequaled, especially if cut and wilted two or three hours in the hot sun. Thus a supply may be kept for morning, noon, and night feeding. Working animals will get along with very little grain when supplied in this way with alfalfa. Nothing gives better results for milch cows. Pigs, lambs, and colts, are very fond of it, and thrive when so fed. It may be grazed moderately, but heavy close grazing will destroy it. Properly managed, it will yield honey crops for 40 years. We are told that there are heavy fields of it in South America that have been growing continuously for centuries. It has been tested by the States more or less for perhaps 50 years past. From the fact, however, that it has been mostly abandoned, except in the great West, I am inclined to think it will not come into general favor unless under very favorable conditions, or because it yields honey as well as hay.

Some writers claim that the amount of rain we have here would be fatal to it during the majority of seasons. Others say, however, that the rain will do no harm, providing the land is thoroughly underdrained. It is quite certain, I believe, that great quantities of seed have been sold by seedsmen at enormous prices, because of exaggerated accounts given in the seed catalogues—that is, exaggerated in regard to the great depth to which the root grows in ordinary soils, and also in regard to its adaptability to all localities. At the present writing, the seed is worth with us about $7.50 per bushel; but we see it advertised in the Pacific States as low as three or four dollars a bushel. The price of the seed will, however, probably be very soon equalized, to the advantage of both parties. In rainless regions, where irrigation is depended upon, there is none of the difficulty in growing it perfectly that we have here. On this account it has been suggested that alfalfa hay may sometimes be shipped from the Great American Desert to Chicago, and possibly other points, cheaper than hay of equal quality can be produced in regions where rain is plentiful.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PAINTING SHIPPING-CASES; SCRAPING SECTIONS.

Is it customary or advisable to paint shipping-cases? If so, what color?

If I could get careful boys or girls to scrape sections ready for market—those who would not stick the knife or their fingers into the cappings, how much per hundred would it be worth, including dinner and supper, say half board?

I had eleven colonies, spring count, and increased to 33. I took 900 lbs. of extracted and 500 lbs. of comb honey; that would be 127¾ lbs. per colony, and I had left from 30 to 40 lbs. in each hive.

Durango, Ia., Mar. 3. J. M. WOODHOUSE.

Of late years, friend W., it has not been deemed best to paint our shipping-cases at all, and I believe they are seldom returned. Cases made of clean new lumber look better, as a rule, than the painted ones; and if there should be any daubing, it shows worse on the surface of the white paint than on clean wood.—We could not well suggest a price per 100 for scraping sections, especially when the labor may be much more in some cases than in others.

THAT PINE-TREE HONEY.

My bees made more honey in December and January last, than they did in August and September. The oldest inhabitants have never seen any thing of the kind. The honey-dew has dripped from the pine trees like rain falling. The leaves under the trees have been perfectly coated with the honey-dew. Walking in them, they would stick together in piles. From what I have seen myself, and what others have told me, thousands of tons of honey-dew have fallen. If the days had been longer, and all warm, so the bees could have got out early and late, they would certainly have made more honey than they ever did for me in the spring. Some of my strongest colonies filled the second story with fine honey. J. D. COOPER.

Traveler's Rest, S. C., Feb. 5.

THE JAMAICA EXPOSITION.

Would you allow me space in your valued paper to call the attention of supply-dealers to an exhibition which is to be held in this city in January, 1891, and at which a special pavilion is to be set apart for the exhibition of bees working, and bee-keeping appliances?

As the exhibition will be held in the middle of our honey season, and as the management hope to attract many visitors, not only from Europe and the United States and Canada, but also from the other West Indian Islands, and from Central and South America, it would appear to be a capital opportunity for showing up modern bee-keeping appliances in this part of the world.

The Jamaica Bee-Keepers' Association have been asked by the exhibition commissioners to work up the bee-keeping department; and should any of your readers be desirous of sending an exhibit of appliances they will be happy to supply bees for any hives, etc., which it might be desired to show working, and to do all in their power to show off the goods to the best advantage.

If any reader desiring further information on the subject will communicate with me I shall be happy to procure and forward copies of the regulations and forms of application for space (a sample of which I send you for information), and any other particulars they may require.

Applications for space must be sent in not later than July 1, 1890. C. O. MAGNAN.

Kingston, Jamaica, W. I., Mar. 12.

ANSWERS TO QUESTIONS CONCERNING OREGON AS A BEE-COUNTRY.

Some time ago, I hear, my name appeared in GLEANINGS; and, of course, coming from Oregon it was read with interest. So far, so good; but that little article (I don't remember what it could have been) has gotten me into trouble. I have received 18 letters of inquiry (from brother bee-keepers, I presume), in different States. That's all right too. But some of them are outrageous. Not one of them contained even a stamp for reply. One of the writers (and I hope he will see this), after asking 22 questions as to whether he could make a living, etc., and get the best land for nothing, had the "gall" to ask me to get him a situation at good wages, as he had a large family, and *answer by return mail*. How's that for "heaping coals of fire" on my poor head? Now, Bro. Root, I am ready, and always was, to do all I can to further the interest of any one; but it is out of reason to abuse privileges. We are civilized out here—no Indians (wild). My business keeps me very close, and I rarely get time to tend my bees as they should be; so if all inquiring brothers will write to the Immigration Bureau, Ash St., Portland, Ore, they will get all the *printed* information they want (but no situations).

Spring has fairly opened, and bees are loaded with pollen. Yesterday they literally choked the entrances in their mad scramble to get in and unload. No losses the past winter, although I hear of some through the country. E. J. LADD.

Portland, Ore., Mar. 18.

ALFALFA HAY OVERESTIMATED.

I tried raising alfalfa on clay land near Syracuse, N. Y., some years since. It was a failure. It seems to be best adapted to irrigated sections. In Denver, alfalfa is worth about half the price of timothy. Many liverymen prefer other hay. New York men are not foolish enough to ship alfalfa from Colorado the second time at any freight rate like $180 per car. In my opinion it is an overestimated hay. Cows and horses eat it readily, and rich milk in large quantities is produced from it. The seed shipped from Rocky Ford, I think, goes to Europe, and not for seeding in New York.

Broomfield, Colo., Mar. 25. J. T. CLAPP.

ALFALFA FOR PARTICULAR LOCALITIES.

I have received a number of inquiries from different sources, asking if I thought it would grow in particular localities. I can say but little more than I have already said, that I think it will grow in any sandy loam or any loose deep soil. It is not liable to winter-kill unless water stands on it. I think it will grow well in any latitude, provided the soil is suitable, and I would advise any who desire to raise it to give it a trial, at least on a small scale, irrespective of climate or latitude. You will doubtless be pleased with the result. D. L. WILLIAMS.

Caldwell, Idaho, Mar. 28.

COVERS FOR HIVES.

Tell Dr. Miller to try a cover for his hives, made by nailing a piece ⅞ x 1½ in. on the ends. Let one

projection be up and the other down; and every time he takes it off, just turn it upside down for a while, and old Sol seems by and by to let it alone. I have used them thus a long time, and I like them well. You see there are four ways to put them on, which ought to suit people who love to reverse.

D. McKENZIE.

Camp Parapet, N. O., La., Apr. 9, 1890.

We can use our covers for the Dovetailed hive in the same way. It is true, old Sol melts down the bits of burr-combs, but it makes both sides of the cover unsightly.

SPACING OF BROOD-FRAMES.

Is there any need of spacing our brood-frames further apart than the bees ordinarily leave them when they fill and cap them with honey or brood? If there is an advantage, please state what it is.

TWO COLONIES IN THE SAME HIVE.

Is there any serious objection to having two full colonies of bees in the same hive, separated by a close-fitting division-board, and having their respective entrances in opposite directions?

Dallas, Tex., Feb. 20. C. J. WEATHERFORD.

For winter we have spaced our frames in chaff hives further apart. We are not sure that it is necessary, however. For cellar wintering, and at all other times, wider spacing is unnecessary. There is no serious objection to having two colonies in the same hive, as you state, but some advantage in point of heat. Why such hives are not more generally adopted is because they are larger and more cumbersome, and are not as well adapted for hauling.

BEES DYING ON THE GROUND; STARVATION NOT THE CAUSE.

I see by the report on page 168, Mar. 1, that the Wisconsin bee-keepers made up their minds that lack of stores was the reason of their bees dying on the ground in June. I had 55 stocks on my yard last spring, and there was not a hive short of stores from the time bees began to fly in the spring until they stopped flying in the fall, and have not been since. I lost only one stock in wintering, and that was my fault. They did not die from lack of stores. In the midst of the white-clover harvest, when they were storing honey as fast as at any time during the season, there were days when the ground was full of bees crawling around. You could scrape dead bees up in the paths—lots of them. I should think there would be bees enough on the ground to make a couple of good swarms. There always seemed to be more of them when the sun came out hot after a day's rain. I have had one hive affected that way all winter. I have noticed it every time the bees could fly. They were flying yesterday, and I noticed quite a number of bees on the ground in front of the hive. Bees have been able to fly here every two or three weeks all winter, and sometimes two or three times a week. I thought the trouble was one form of the nameless bee-disease. I have had that among my bees, and have noticed that bees in the same hive are not all affected alike by it. Some of them seem to dry up, and get black and shiny—look as if they were only skin and bones, and others swell up and look like bees that have been long confined to the hives by cold weather; but both have the same nervous twitching of the wings, and motion of the head. There were but two or three days when there were so very many bees on the ground, and that was always after a rain; but for nearly two weeks they were affected in that way. I hope some cure can be found for the trouble.

DEAD-AIR VS. PACKED HIVES.

In last GLEANINGS the answers in regard to vacant space or chaff packing interested me. I think Mr. J. A. Green's reasons are correct. I never tried hives with no packing, but I have several with seven thicknesses of heavy building paper around them, with a ¼-inch space between the sheets. Bottoms and sides are covered alike. The bottom and side sheets have joints, so as to prevent circulation of air as much as possible. The bees in the chaff and sawdust packed hives always winter better than in those covered with paper.

The winter has been easy on the bees here, but it looks now as if the spring were going to be hard enough to make up for it. It snows almost every day, and the nights are quite cold. I saw one load of pollen come in yesterday. E. D. HOWELL.

New Hampton, N. Y., Apr. 1.

Friend H., we are much obliged to you for letting us know that there is something about bees dying around the hives in June that we did not "know" all about. We thank you, too, for letting us know that a dead-air space made with building-paper is not as good as chaff. Our house-apiary was built thus with much pains and at large expense, that it might be absolutely impervious to frost. We succeeded in this; but it is damp and cold, and I should very much rather have a house made with narrow strips of wood inclosing sawdust—that is, for almost any kind of work, unless you want a damp cellar for roots, potatoes, etc.

A PECULIAR SEASON IN NAPA CO., CAL.

This has been a very peculiar season in our locality, and some have called it quite phenominal. Seventy-two inches of rain has fallen thus far, and we have even had six little snowstorms in the coast range of mountains—one of eleven inches. Bees are in fair condition at this altitude, 1750 ft.; but the little fellows have had a very lonesome time of it. I notice some wild black bees flying to-day, and I picked up several dead ones from off a snowdrift recently. The manzanita has nearly finished blossoming, and has yielded little honey on account of the wet. The willows are out now, and a number of wild flowers, which a little later will number almost a thousand and one—figuratively. There are only five bee-keepers in the whole of this county of Napa, with a total of less than 200 hives of Italians.

St. Helena, Cal., Feb. 25. WILL C. AIKEN.

CORRECTION ON THE OHIO CONVENTION.

It seems that I was unfortunate in making myself understood at the convention, for I was reported in the *Ohio Farmer* as saying that I had 40 swarms from reversible frames, when the 40 swarms mentioned were hived *on* reversible frames five years ago, and, of course, came out of hives with non-reversible frames, as it was the first year that I used reversible frames. In answer to a question, I said that I had about 20 swarms the past season, which did not contradict the claims made in my paper, as stated in the *Farmer*. And now comes GLEANINGS, with your report that I did not think reversing killed the imago queen, when, in fact, I think in does, unless they are nearly

ready to hatch. Now, the fault was not yours, but mine, because of my own stupidity. You see, I understood you to ask about *brood;* and as some of the friends had bantered me about making the "baby bees" sick by inverting their cradles, I laughingly told you it was all nonsense.

Oberlin, Ohio, Mar. 21. CHALON FOWLS.

A LOW YIELD PER DAY.

I send you a clipping taken from March 15th No. of *Farm and Home.* Now, don't you think there is a mistake somewhere? for during the best honey season the best day gave a gain of only 2¾ lbs. I had bees do better than that on fall bloom. Last season one colony I weighed gave me 55 lbs. in 20 days; the best day was 6½ lbs.; and to think that a colony during white clover and basswood gained only 7½ lbs. in June and July—it would not half winter them. Had you not better investigate it a little, and, if wrong, have it changed? Perhaps some poor fellow may have just started in the business, and may see that article, and live in a place where sugar is high, and could not afford to keep bees at that rate, and go out of the business. Here is the clipping:

An interesting trial of the industry of bees has just been made at the Rhode Island Experiment Station, by placing a hive on scales and frequently recording its weight. Beginning with June 11, on which date no gain was made, the increase fluctuated from nothing to 2¾ lbs. per day. During July the greatest increase during any 24 hours was 2¾ lbs. per day. This was a hive of fair strength, and the weighing was done between 4 and 5 A. M., before the bees left the hive. There were 20 days during which a decided gain was noticed, six in which no gain nor loss took place, and 18 days of loss. The gain was 22½, and the loss 15 lbs., leaving a balance of 7½ lbs.

Watson, Mich., Mar. 21. A. C. FASSETT.

You are right, friend F. The locality must have been very poor or the colony very weak, to give so small a result as reported by the Experiment Station. We have several times had 10 lbs. gathered in a single day from white clover.

EXTRA SPACE UNDER BROOD-FRAMES; REVERSING.

Some writers claim an advantage in wintering bees by having a large space under the frames. Would not this advantage work equally well by having a space of ¾ or 1 inch or more under the frames summer and winter? Is it injurious to a frame of brood to reverse or turn upside down in any stage? What kind of flour is best for feeding bees in the spring? SUBSCRIBER.

The claim is made as you say. Experiment this summer will decide whether it would be an advantage or not. We never could see that it hurt the brood to turn it upside down. It may sometimes kill larvæ in queen-cells. We use rye flour. You may have to start them with a little syrup in order to get them to take it. Natural pollen comes in so soon with us that we have lately given no meal.—See page 129 in regard to a large amount of space under the comb.

ARE BEES IN A CELLAR UNHEALTHFUL? ETC.

1. Would wintering bees in a cellar under the house make the living-room unhealthful on account of the exhalations from the hives?

2. Do you think chaff hives for wintering out of doors would be cheaper in the end than single-walled hives put close together and protected by leaves, chaff, or some such substance?

3. Are the flat covers a sufficient protection to the hives from the weather?

4. In using supers, would not the white-clover honey be put into the brood chamber first, and the inferior honey later on in the supers? If so, would there be an advantage in using an upper story?

DANIEL J. NAFTEL.

Goderich, Ont., Can., Feb. 1.

1. No, if the cellar is ventilated occasionally by opening a door or window at night, and if the dead bees on the cellar floor are not allowed to accumulate in too great numbers.

2. Chaff hives would be cheaper in the end.

3. They are. Most bee-keepers prefer them.

4. If stores are scarce, the white honey, when it did come, would go into the brood-chamber first. Bees will be pretty apt, especially the Italians, to fill brood-chamber first, no matter what the honey is; after that they will go into the supers if the colony is strong enough, and there is a good flow of nectar. As a general rule, there will, or ought to be, enough inferior honey in the brood-nest to cause the first white honey to go above.

NUCLEI FROM STRONG COLONIES IN THE SPRING; A QUESTION.

When the colonies become rousing strong in the fore part of May, will it lessen the number of pounds of honey in June and July, if I take a couple of frames with adhering bees to start a nucleus from each hive, and put frames in their place, filled with foundation? C. REYNOLDS.

Fremont, O., Feb. 28.

Friend R., it will most assuredly lessen the honey yield if you take brood or bees from any hive at any time, especially in the fore part of the season. Where brood-rearing is stopped, or brood is taken away just before the honey season closes, you may, by reducing the number of consumers, save a little honey. It has also been recommended to prevent swarming, by taking away brood and bees, for this will be a kind of artificial swarming.

ALFALFA ALONG THE ARKANSAS RIVER BOTTOM.

Kinsley is about a mile from the Arkansas River, and the river-bottom is from 3 to 7 miles wide. On this bottom there can be good water found anywhere at a depth of from 8 to 12 ft. (sweet water). The farmers here are beginning to sow alfalfa clover very extensively. The history of alfalfa is, that the *root will go down 30 ft. if the soil* is so that it can penetrate it; and such is the nature of the soil here. Once there, it is good for 20 years, and once you have a good stand you can cut two or three crops a year, and two and three tons per acre. When alfalfa is in bloom, and you drive alongside of a patch, and the wind comes over it, its fragrance is very strong and sweet.

Kinsley, Kan., Feb. 13. FRANKLIN SPIEGLE.

THE MOSS-BACKED COUNTRY; OR, BEES AND BASSWOOD.

I have never yet seen a word in GLEANINGS from up here in the moss-backed country. Perhaps you have never heard of such a place. It is a new country yet, comparatively, for the oldest settlers have to look back only about from 10 to 15 years when it was a wilderness. Ours is a manufacturing town, where the timber is worked up into butter-plates, broom-handles, lumber, etc. There are

quite a good many in the bee-business here, and are doing very well, it being a heavily timbered country. We have a good deal of basswood, white clover, and red raspberry, the latter growing spontaneously in all open places. I had 15 colonies last spring, and now have 40, all wintering well. My nephew extracted 1800 lbs. from 20 colonies, so you see they do something here. I want to state how we winter bees here, and then you can put the whole thing into the waste-basket if you think best. We dig a hole, or pit, in the ground, and board it up and cover with boards and then dirt, leaving no ventilation whatever. That is the way I have wintered my bees the past two years. I use no tobacco, so I shall have to go down into my pocket for those two smokers we need.

It is our turn to "smile" now. Instead of *mud* we have had *splendid sleighing all winter.*

Mancelona, Mich., Mar. 17. E. CHAPMAN.

Friend C., your bees will probably winter very nicely in your sandy soil, even if you make no provision for ventilation. I suppose I am correct in thinking the soil is sandy and porous in that section of Michigan where you live.

BEES AND SAP.

For what purpose do bees use the sap of trees? I notice them using water out of holes in trees that seems to be stale, and mixed with sap. Is it one of the necessary ingredients in the preparation of food for larvæ, or do the old bees use it to aid digestion? G. D. MIMS.

Falfa, S. C., Feb. 17.

Friend M., you evidently have never read our little book, "Merrybanks and his Neighbor," or you would not inquire why bees use sap. It furnishes them both water and sugar; and did maple sap come at a time when the weather is favorable for the bees to fly, it would probably be one of the greatest aids to brood-rearing. Bees do seem to prefer, at times, stale, foul, and stagnant water; and I do not know that any good explanation has been given. Possibly they take it because they need water, and do not stop to notice whether it is clean or not, very much as common fowls will often drink water which is leached from a manure-heap, possibly because they are too lazy or too stupid to go where better water can be had.

GOOD OR BAD LUCK; A STORY WITH A MORAL.

Some eight years ago I invested $64 00 in eight swarms of black native bees. Within three years I was without bees or honey, every pound of the latter I got having cost me over 75 cents, saying nothing about my time and bother. Before I bought those bees I thought I knew all about keeping them. After my cash and bees were gone, and all I had to show for them was a lot of empty hives and old combs, I came to the conclusion that all is not gold that glitters, even in bee-keeping. I made kindling-wood of the hives, wax of the combs, and came to this conclusion on two things: First, that I would go a little slower next time; second, that the next bees I got should not cost me any thing, only the time to find them and the hives to put them in. Last winter being quite mild, a good many bees lived over in the woods; and being a practical bee-hunter (if not a bee-keeper) I have hunted bees nearly every year for twenty years. I found five swarms in the timber, in April. Some one was good enough to steal one of them before I got around to take them up and transfer to hives. I took up the other four, however, and I got last season from the four, spring count, 200 lbs. of comb honey and about the same of extracted, or 100 lbs. per colony, spring count. I have now 10 swarms in the cellar, the increase from last season, which at present, March 31, are in good shape. L. J. CLARK.

Wiscoy, Minn., Mar. 31.

Friend C., your bad luck was the result of investing heavily in bees to commence with. But why you should make kindling-wood of the hives, and wax of the combs? Wouldn't your hives and combs come in nicely now with the rational start you have made?

A BEE-KEEPER'S SAD HOME.

Mr. Root:—As my husband is a bee-keeper and a reader of your valuable paper, I take these few sad moments to write to you. We have met with a sad loss. Death has entered our home and taken our pet, our little baby. Just one month ago today she closed her sweet blue eyes; and as she loved so well to look at "papa's paper" I thought I would send you the following lines:

OUR TWO-YEAR OLD LITTLE ELLA.

Fold the little waxen fingers
Softly o'er her snowy breast;
Death has claimed our little darling—
Little Ella's now at rest.

Place within her hand sweet flowers,
Broken from the parent stem—
Fitting emblem of our treasure—
God has claimed our rarest gem.

Dearer far to us than riches—
Aye, *how* dear we ne'er could tell,
Till stern Death, with icy fingers,
Seized the one we loved so well.

Sweet blue eyes are closed for ever;
Busy hands for ever still;
Lisping tongue for ever silent!
Naught on earth her place can fill.

Hushed is now her childish laughter;
How we miss her gentle tread!
While our home, so sad and dreary,
Seems to echo, "Ella 's dead!"

She 's not dead, but only sleeping;
Christ himself has told us so;
We vainly try to cease our weeping,
But our hearts are filled with woe;

Filled with sorrow, for the parting
Was so sudden it might seem
That our fancy still were smarting
From a restless, troubled dream.

Strew her tiny mound with flowers—
Flowers that were our darling's prize;
May their fragrance wide be wafted
Till the Savior bids her rise.

Woodstock, Kan., April 18. MRS. F. W. ROGERS.

Hold fast to the Savior's promises, dear brother and sister; and if the loved one who has gone before you should be the means of fixing your hearts heavenward, and helping you to better meet the temptations and allurements of the sin of the world, then her little life was not in vain. Most folks know something of such trials, and you have our sympathy.

MANUM NOT INTERESTED IN SUPPLIES.

Friend Root:—It seems that many of your readers think I am in the supply-business. I judge so from the many letters I am daily receiving from parties who are in want of supplies, and who make especial inquiry about the Bristol hive, asking for my price list, etc. I wish to state right here, that I am *not* in the supply-business, nor interested in it in any way; hence my article in January GLEANINGS, describing the Bristol hive, was a purely unselfish motive, except that I like to see a good thing put forward for the good of all. My successors in the supply-business are Messrs. Drake & Smith, of this place, whose advertisement can be found in this number of GLEANINGS.

BEES WINTERED WELL.

Again my bees have wintered well on their summer stands. My loss up to date is 18 colonies out of 664, being less than 3%. You will remember, that last fall I was a little uneasy over the prospect, owing to the fact that my bees had stored so much poor fall honey and honey-dew. But, thanks to an open winter and the Bristol hive for my success in wintering. In order to make this report full and complete I should say that I have several light colonies that will probably dwindle out unless we have a favorable spring. A. E. MANUM.

Bristol, Vt., Apr. 15.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 159.—*a. How often is it necessary, in your experience, to visit an apiary run for the production of comb honey? b. For the production of extracted honey, would it be necessary to make the visits oftener, and how often?*

a. Once in ten days. b. About once a week.
Wisconsin. S. W. E. FRANCE.

I am in mine every day. I know nothing of out-apiaries personally.
New York. C. G. M. DOOLITTLE.

a. About once a week in the busiest time. b. About the same, I think.
New York. C. P. H. ELWOOD.

I have not had experience with out-apiaries; but I doubt whether any rigid rule can be followed successfully.
Cuba. O. O. POPPLETON.

a. Often enough to look after swarms and see the colonies have the right amount of surplus room. b. Not as often.
Ohio. N. W. A. B. MASON.

a. Every day during the honey season and swarming time. b. No. When run for extracted honey, twice or three times a week will answer.
Vermont. N. W. A. E. MANUM.

We visit our apiaries twice a month during March and April; about three times in May; about four times in June and July, and more or less often during the other months till the bees are prepared for winter.
Illinois. N. W. DADANT & SON.

a. I like to get to each apiary every four to six days in the busy time. b. Ask Dadant or France. I should guess once a week.
Illinois. N. C. C. MILLER.

I have no out-apiary, and can not answer from experience. If I had one, and it behaved like my home apiary, it would badly need some one at hand most of the time.
Ohio. N. W. E. E. HASTY.

I find that one has to be continually in his apiary during the honey-flow, either for comb or extracted honey, unless it is composed of only a few colonies.
Louisiana. E. C. P. L. VIALLON.

b. We keep from 200 to 400 hives in each apiary, and think it necessary to have some one present in the apiary about all the time from April to August.
California. S. W. R. WILKIN.

It has been my practice to visit out-apiaries once each week, both when boxing or extracting. Much better results will be reached when you can have constant supervision of the apiary.
Connecticut. S. W. L. C. ROOT.

In the busy season, once a week, I should say. I have had no experience. Of course, the hives would have to be watched unless queen entrance-guards were used.
Michigan. C. A. J. COOK.

a. That depends altogether upon the season and the honey-flow. b. If a large hive is used with a full set of frames in second story, it would not be necessary to visit as often as if run for comb honey.
Illinois. N. W. C. MRS. L. HARRISON.

a. That varies so much that no rule can be laid down. When you have some one to hive the swarms on the premises, a visit from the apiarist, during the honey season, every three to eight days, say, will be sufficient.
Wisconsin. S. W. GEO. GRIMM.

a. That would depend much on the honey-flow and swarming impulse, and how you manage them when you made your visits. b. In a large apiary, in the swarming and honey season we find it necessary to visit them daily.
Wisconsin. S. W. S. I. FREEBORN.

Your visits to your apiary should be determined by the season and not by "made-up" rules. If your own experience does not tell you when to examine your bees, your chances are poor for a full crop of honey, and for yourself to ever become a good bee-keeper.
Ohio. S. W. C. F. MUTH.

I have had but little experience with out-apiaries run for comb honey. A small one got along very well with visits at intervals of about a week during the producing season. For extracted honey the visits need not be so frequent. I have run out-apiaries for extracted honey, visiting them only five or six times during the season.
Illinois. N. C. J. A. GREEN.

That depends on the kind of help you have. If you have poor helpers you will find it to your advantage to make such visits as frequently as possible. With reliable help, apiaries might be run through the season without seeing them. b. I should think not, especially with abundance of sur-

plus combs. Much depends upon the methods employed.

Ohio. N. W. H. R. BOARDMAN.

I should think about as often as to visit one run for extracted honey, and that is once a week from the first of May until in July. I gauge my visits by indications in the home yard. If honey comes rapidly, surplus cases must be ready, and *must* be put on, even if the visits have to be oftener than once a week. Our visits average about once in ten days.

New York. E. RAMBLER.

Oh gracious! Every thing depends upon the system of running out-apiaries which you adopt, especially in the production of comb honey. My plan is to keep a good man in an apiary, said apiary containing bees enough to keep him busy and be worthy of his hire. In the production of extracted honey I have always done the same way, but I am by no means sure but that out-apiaries might be run at a greater profit by locking them up and visiting them occasionally. Every thing depends upon the style of hive you use, and consequently what manipulation and general system of management.

Michigan. S. W. JAMES HEDDON.

The above seems to be pretty well answered, without any thing additional from myself. Friend Heddon, however, hits a point that I think should be considered. He says his plan is to keep a good man in the apiary. Now, the point is to *get* a good man. I *have* had men in the apiary who did so many things that were a direct damage, that I should much prefer having the bees under lock and key, so as to keep them from being tinkered to death. We should be slow, however, in finding fault, especially when many of us have our own selves several times done harm by this same unseasonable tinkering. When the house-apiary first came out it was especially recommended because it might be locked up, to keep the bees and honey safe when located away from the home of the owner.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

KILLING OUT ALFALFA.

I read in the Denver *Field and Farm* two instances where alfalfa was plowed under and the ground seeded to wheat, and a crop of wheat and a crop of alfalfa seed were harvested the same season.

Silver Cliff, Col., Feb. 27. M. NEVINS.

PROF. COOK'S SUCCESS IN MAKING MAPLE SUGAR IN THE SPRING OF 1890.

I lost all my sugar-apparatus, house and all, by fire. I bought new, and have nearly paid for all in this one year. A. J. COOK.

Lansing, Mich., April, 1890.

What is the best way to fertilize a queen by any special drone? ROLAND LINDSAY.

Philadelphia, Pa., Feb. 17.

[There is no best way—it can not be done. *Keep only* drones at large of good selected stock, and you will get good bees.]

CLIPPING OR A QUEEN-TRAP.

What plan would you advise — clipping the queen's wing, or using the queen-traps during my absence? J. N. SMITH.

Harvey Cedars, N. J.

[Clip the queen's wing. The traps are a hindrance if kept on the hive all summer.]

DO BEES SWARM WITHOUT A QUEEN ?

I got into an argument as to whether bees will swarm without a queen or queen-cells. I want your opinion on that question. L. I. MORRIS.

Snowville, O., Feb. 28.

[Bees will seldom if ever swarm without a queen of some kind.]

THE LITTLE BUSY BEE.

How doth the little busy bee
Improve each shining minute!
And sometimes, too, he has his fun;
But, friend, don't you begin it.

Cleveland, O., Mar. 6. R. V. MURRAY.

[Mr. Murray is our special artist for GLEANINGS. He has lately come into possession of some bees, and v(ouch!)es from experience.]

WILL BEES WORK IN THE LIGHT ?

Is light injurious in any way to the welfare of bees? I have a 10-frame glass hive.

Kennonsburg, Ohio, April 7. J. B. WILLIAMS.

[Friend W., bees do not seem to fancy working in the full light of day, as a rule. They may be accustomed to it, however, so that they go right along without any apparent hindrance. We see this in observatory hives placed before windows.]

PROPER SPACE BETWEEN END-BAR AND HIVE.

With ⅞-inch end-bars, is there any danger of propolizing when clearance between end-bar of brood-frame and hive is only ⅛ inch, or how close can the end-bar come and be safe from propolizing?

St. Louis, Mo., Feb. 20. A. C. ALLEN.

[One-eighth of an inch is hardly enough. Bees will fasten it with propolis. Five-sixteenths or ⅜ is as close as you can space; in fact, a bee-space is the best.]

TOO CLOSE SPACING.

I have been using Simplicity hive, 8 frames, spaced 1½ inches. I want to try thick top-bars, 1 inch wide, spaced $\frac{5}{16}$. Would you use 9 frames per hive, or is that too near together to have bees winter well outdoors? BURDETT HALL.

Chittenango, N. Y., April 2.

[Use 8 frames spaced 1⅜ inches from center to center. Closer spacing would not be advisable.]

BEE-STINGS NOT A CURE FOR RHEUMATISM.

I must let you know that I am on the sick-list with that dreadful disease, rheumatism. For three weeks I have been suffering terribly, but I am on the mend, though slow. I hope I shall be all right again. It comes very easily, but it is hard to get rid of. Bee-stings are a very poor remedy. They might help some people, but are no good for me.

Edwardsville, Ill., Mar. 17. LOUIS WERNER.

ANOTHER USE FOR FEEDERS AS HILL DEVICES.

Please tell your readers that two Simplicity bee-feeders, turned bottom side up across the brood-frames, will give as good results as a more costly device for packing bees for winter. C. A. DEAN.

Meshoppen, Pa., Mar. 1.

[Yes, sir, they will work all right. When we fed up our apiary with two wooden butter-dishes we turned the latter upside down over the center of the brood-nest, after they were empty, on some of the hives. They work just as well as the Hill de-

vices; and as they are very much cheaper they would be preferable.]

HOUSE-APIARIES—SEE PAGE 132.

I was somewhat astonished on reading J. Vandervort's statement. What a difference it makes how a house-apiary is built and managed! I have lost no queens yet by mating. I get scarcely a sting, unless I pinch them. They winter better, because better protected than they could be outdoors. I think the difference must be, I use hives and he does not. I would not take a house-apiary as a gift, and use it that way, with stationary hives.

Holloway, Mich., Feb. 17. H. S. HOXIE.

REPORTS ENCOURAGING.

From 90 colonies, spring count, to 130; 1000 lbs. of comb and 7000 of extracted honey.

Wharton, Texas, Mar. 8. W. O. VICTOR.

During 1889 we secured, from 75 colonies, 5357 lbs. of comb honey—an average per colony of 71⅔ lbs.

JOHN & JAMES COWE.

Goodland, Mich., Apr. 19, 1890.

FROM 33 TO 86, AND 4000 LBS. OF HONEY.

My honey crop last season was 4000 lbs.—3000 comb and 1000 extracted, from 36 colonies, spring count, and increased to 83. J. E. HAND.

Abbott, Ia., Mar. 31.

NEVER LOST IN CHAFF HIVES.

I have 40 colonies of bees in excellent condition. I sold 3000 lbs. of honey last season, from 39 colonies—2500 lbs. comb, 500 extracted. I have wintered on summer stands in your chaff hives for four winters, and have not lost a colony.

Atwood, Ill., Apr. 4. J. S. MARSHALL.

1200 LBS. FROM 15 COLONIES.

From 15 hives in the spring my bees increased to 74, and I took 1200 pounds of section honey. I am wintering them in sheds with hay packed around them. They were all doing nicely the first of this week. They had a good fly, and carried in some pollen. E. M. ANDERSON.

Maryville, Mo., Feb. 27.

$500 PER YEAR FROM THE BEES, BESIDES THE INCOME FROM THE FARM.

May 1st found us with about 80 swarms, good and bad. We had at one time 135 swarms, but doubled back to 98, which we put into the cellar the last of November. We took off 5100 lbs. in sections, and extracted 1000 lbs. The last three seasons we have averaged about $500 from them. We have a small farm in the edge of the timber. We have at this date 150 hens and 5 cows. This combination works well, and gives us enough to eat and wear.

E. R. A. & B. BRAINARD.

Postville, Ia., Feb. 28, 1890.

A GOOD REPORT; THE CHAFF HIVE.

I secured 2235 lbs. of comb honey from 15 colonies, spring count, and increased to 28. I attribute my success to wintering in your chaff hive, which I have done for the last nine years without losing a colony in that time so wintered; also G. M. Doolittle's plan of contracting brood-nest to only those combs having brood in them, when examined in spring, and allowing them to thoroughly fill with ood before giving more combs; by also contracting the brood-nest to five or six combs during clover and basswood harvest. M. L. POTEET.

St. Joseph, Mo., Mar. 20.

NO LOSS IN WINTER.

Our bees went into winter quarters with plenty of honey, and came through the winter in fine condition, not losing any out of 100. They carried in pollen April 2, for the first time I have seen them this year, and there has been sealed brood in nearly all we have looked at. Our bees did not do very well last season, owing to lack of honey to keep up brood-rearing at the right time (June). We secured only about 700 lbs. of comb, and extracted from 70 colonies. C. W. BOSWORTH.

Ford, O., April 5.

FROM 12 TO 23, AND 200 LBS. OF HONEY.

I had 12 colonies last spring, increased to 23; took over 200 lbs. of comb honey in 1-lb. boxes, completed, besides as many more that were not completed I sold at home, at 15 cents; sent 48 lbs. to Pittsburg, Pa., and got 20 cts. for it. After paying express, I cleared about 17½ cts. The empty crate was never returned. I sold 7 colonies, which left me 16 to winter. Thus far I have lost none.

Fairview, O., Mar. 5. E. C. MORTON.

Friend M., it seems that you got more money for your honey at wholesale than you did at retail. In that case it certainly pays to send it off to the large cities. As the cases that we ship honey in cost so little, I do not believe it is worth while to have them returned unless there are a good many of them, and can come direct.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

STAPLE-SPACERS.

F. J.—If you will turn to the foot-note to Phelps' article, p. 99, you will see that we have already anticipated your idea of staples in the rabbets. The idea now seems to us to be the most feasible for hanging frames.

A. G.—We can not make swarms alight where we want them to, at least not very often. You can not prevent swarming entirely. If you produce extracted honey, and give the colonies a large amount of room, you can to a large extent. See "Swarming," "Comb Honey," and "Extracting," in A B C.

SENDING BEES BY FREIGHT WITH HOUSEHOLD GOODS.

J. H.—Bees can be shipped by freight with household goods, providing you see to loading and unloading. Be sure to put frames lengthwise of car. If frames are hanging, stick them up. We do not know much about Roe's chaff hive. It is probably a good one. The Simplicity frame is used in all our hives.

B.—Yes, we can make a cover for the Dovetailed hive like the Simplicity, but you do not want it. The whole bee-fraternity is demanding the flat cover. There should be only a bee-space (⅜ inch) between the cover and the brood-frames. If you have more above you will have just so many more burr-combs. The cover should either be flat, or deep enough to hold sections. Less than a bee-space or less than 4½ inches is a positive detriment. We would strongly urge you to get the flat cover. It is cheaper and better.

MYSELF AND MY NEIGHBORS.

Therefore shall a man leave his father and his mother, and shall cleave unto his wife; and they shall be one flesh.—GEN. 2 : 24.

Be fruitful, and multiply, and replenish the earth. —GEN. 1 : 28.

SUPPOSE some hideous giant should come on mankind, and kill them all off; what sort of a world would this be compared with what it is just now? Or, suppose that cyclones, tornadoes, and earthquakes should destroy and kill off every vestige of the human family. God does permit and has permitted at times a wholesale destruction of human life; but it seems evident, without going to the Holy Scriptures, that the intention of the Creator of the universe can not be to destroy human life utterly. Man, especially at the present time, occupies too prominent a position in the universe for us to cherish a thought that he may ultimately become extinct. Whether one turns to the Mosaic record, or whether he takes a common-sense view of the present state of affairs, he must, if honest, admit that the evidences are too plain and unmistakable that the universe was created for man and not man for the universe. What has this to do with our text? Why, this much: Some of the friends who read GLEANINGS, evidently seem to think (in practice at least, if not in theory), that the extinction of the whole human family would be no very great calamity. Yes, they go even further than this. If this great giant should kill all the best of the people, and leave the bad, we might complain of him more than if he took the good and bad alike, indiscriminately. Or if the cyclones and tornadoes should destroy only the good, hard-working people, and skip over the vicious and criminal classes, that would be harder to understand than entire extinction. A good deal has been said about suicides lately; and we have talked about it as if it were a malady or disease—a terrible one too, I admit. Why did God so create us that it were possible to commit self-murder? Well, I have been conversant with quite a number who were bent on suicide. I have talked with them; and I have found quite a few people who declare that life is no boon nor blessing; and sometimes fairly good people are wicked enough to say, "I wish I were dead;" but I never yet found a man or woman so bad as to say right out that they would kill themselves *and everybody else* if they had an opportunity. I never yet talked with any one who meditated or longed for universal suicide—the entire extinction of humanity in general; yet I have seen people who in practice seemed to be quite indifferent to the fact that they were setting an example recommending the total extinction of the whole human family, or, as I put it just a little back, the destruction of —shall we say the better class of people? My friend, perhaps you think I am overdrawing things this morning. Let us see whether I am.

In our text we have the plain command that a man shall leave his father and his mother, and cleave unto his wife. Now, suppose those of you who are, say, 25 years of age or more, are still living with father or mother, or, if you choose, living by yourselves, in some other way, without any thought or intention of obeying this Bible precept. What would be the result? If no one should get married, it would take only a little more than 100 years to bring about this universal suicide I have been speaking of. I am taking it for granted that the readers of GLEANINGS average a little better than that portion of humanity who do not read it, or perhaps who do not read any thing at all. Are Christian people, you ask, more likely to get married than other people? I think they are. Look about you, and see if it is not so. It is true, there are a good many Christians who do not get married; but I think they are, as a rule, doing wrong. They are omitting one of the first commands spoken to the human family at the very beginning of the human race; and without any Bible about it, they are encouraging, by example, wholesale suicide, or, if you choose, general suicide. Should everybody get married? If you want my opinion, dear friends, I think that, *as a rule*, everybody *should* get married. I am now speaking chiefly to my own sex; but I shall have something to say to the other sex before I get through. I propose in this talk this morning to quote a good deal from my son Ernest. I do not mean that I shall quote from his writings, but from his words and admonitions that have been dropped now and then for 25 years or more. Shortly after he left college we were discussing a candidate for a very prominent office in the affairs of our nation. He surprised me by saying that it was a little against him that he was not a *married* man. I looked up a little in surprise, and replied:

"Do you mean that to be taken as a universal rule—that is, are we to take it for granted, that, other things being equal, a man who is married is a better *moral* man than one who is not?"

He replied very decidedly that such was the teaching of the college professors, at any rate. I have thought of it a good many times since, and I believe that his teachings at school were about right. My good friend, if you are of a marriageable age, and are still standing before the world as unmarried, your example is a bad one. In looking after the welfare of the young men who are at work for me, and who have been working for me for toward a quarter of a century, I have been led to rejoice when I knew they were getting married. When the womenfolks of our establishment get married, it generally means giving up their places; but notwithstanding that, I am, as a rule, glad to know they are getting married. Of course, I must put my own convenience out of the question when I say this. I do not feel, however, that I can with as much consistency advise women to get married, generally, as men. One reason is, they sometimes make mistakes, and marry men who are not worthy of them. But even this state of affairs sometimes—yes, oftentimes,—turns out well if only *one* of the two has the love of Christ Jesus in the heart.

Our second text says, "Be fruitful, multiply, and replenish the earth." There are two phases of this question; and before taking up the first one I want to ask your indulgence a little. I am an old friend to most of you. I am pretty fairly along in years also, so that I can speak to you in fatherly counsel, and I may also speak very plainly, I think, without being out of place. What I have to say now is a good deal to the young people—perhaps mostly young men; but I feel sure that it will be right and proper to put what I have to say, even on a printed page, where perhaps the younger ones of my family may read it also. The point is this: There *is* such a thing as fulfilling (at least after a fashion), a command like one of our two texts, without marriage at all. Since the world began, this thing has come up at different times, and I believe we have had a few men as well as women who were bold enough, and, I think I may add, silly enough, to recommend abolishing marriage. Of course, this is contrary to Scripture; but I am glad to say that it is contrary to common sense too. Even those who practice otherwise, strongly recommend faithfulness to the marriage relation. In the ten commandments, this seems to be recognized as of so much importance that it is placed right after "Thou shalt not kill." Society at large, almost the whole world over, regards the desecration of this command as so fearful a crime that mankind stand away and hold themselves aloof from the guilty ones. It has been said, that, although one who is sunk to the lowest depths in intemperance may reform, the ones who disregard again and again this particular command, may *never* reform; and even if they do, nobody believes them. Christ's teachings, however, have done much to correct this. Christian men and women are now ready to say, as did the Savior of mankind, "Neither do I condemn thee; go, and sin no more."

A good many who are guilty of breaking this command seem to think that, providing it can be kept secret or out of sight, it does not matter so very much. O my young friends, do not fall into this grievous error. It is Satan who persuades you that it can be concealed; and it is Satan who tells you "it does not matter so very much." Sometimes people say that David broke this commandment and God overlooked it. True, my friend; but does history show any parallel to such grievous punishment, trouble, and calamity for sin, as the one that followed David's wrong act? Who would go through with what he did? who would see his children commit crime after crime, even to the finishing stroke of having one of his own children pursue him to take his life, simply that he might take the throne a little sooner? And the day is *not* past, my friends, by considerable, when *like* punishment shall follow swift and fast.

For some time past our jail has been mostly deserted, from the fact that intoxicating liquors are sold no more in our town, and, to a very limited extent, in Medina County; but this very sin of which I have been speaking still brings more or less inside our jail walls. Two Sabbaths ago there was quite a class in the jail. Two if not more were guilty of crime in this line. The Bible soon came under discussion. That was rejected also, as I expected it would be. I was astonished at one pleasant-faced young man; and I was perplexed, also, to hear that he was in prison for so very trifling an offense. Some people threw stones at him. He picked up a stone and threw it back at his persecutors. He threw straighter than the latter, and one of them was injured, therefore he was in jail for assault and battery, even though they, without question, "cast the first stone." During my first visit I did not make any headway in leading him to Christ Jesus. When the rest had all left, however, and he had been for some weeks alone, he told me some of his troubles. During my first talk, it seemed to me as if there were a sliver somewhere under the flesh, that was hurting him, and that no permanent relief could come to him until the flesh were probed and the sliver got out. As his spiritual adviser I questioned him, of course by his permission. Four years ago he was a member of the church, a new convert. Why should he now be in jail? The first thing I found out was, that, as he was a barber by trade, he had been breaking the Sabbath. He said that, as his competitors in the town kept their shop open on Sunday, of course he was obliged to do the same. He could not make a living and compete with the others unless he also worked on Sunday; therefore he had not been to church for a good while. Now, I have heard this excuse over and over again. Just see the fallacy of it. Did he make a living and compete successfully with the others by keeping his shop *open* on Sunday? Why, to be sure he did not, or why should he be here in jail? For a time I was inclined to think his breaking the Sabbath might be the sin that brought him into this present trouble—at least, he seemed to think it was the worst thing he had done that a Christian ought not to do. I soon found out that he was a married man; next, that he had one child. In appealing to him for the sake of his wife and child, I discovered that this one child was less than a week old. The poor little stranger came into the world while its father was in jail, and, in fact, he had never seen it. A little later, in answer to a searching question, he confessed that he had been married less than half a year. Sabbath-breaking may have opened the way; but sin and crime followed quickly on. The marriage ceremony was performed while he was in the custody of an officer of the law. After he had told me all, he begged piteously to have me save him from the workhouse that stood right before him, by paying his fine and taking him into my employ. It fairly wrung my heart to tell him that I had learned by sad experience that it was not best for me to interfere with justice.

And now, my dear friends, comes the point I wish to call out and emphasize. When this young man confessed to me his crime in breaking this commandment I am speaking of, he excused himself by saying that *he* was not *particularly* guilty in that line. He spoke something like this:

"Why, Mr Root, you surely are aware that boys the world over are accustomed to transgress more or less, and that it is hardly to be expected that the average young man, before he is married, shall be entirely exempt from this kind of sin and folly. After he gets married, as a matter of course it is his duty to be faithful to his wife."

When I asked him if being a member of the church did not require absolute faithfulness in keeping this command, he seemed to think it was expecting almost too much of the average young man, at the present time. Perhaps some of you who read this may smile. May be some of you think, as did this poor friend in jail, that my young friend was giving me the actual state of affairs here in our cultured and enlightened land of liberty. I will admit this, dear friends, that *some* of you may have lived in a community, or have for your friends and companions a class of people who are about like those described above; but, may God be praised, I know it is not the rule. I am just as sure that the young Christians of our town and community—the members of the Endeavor Society throughout our land—are not of that class, as I am of almost any thing. There may be exceptions, and there are doubtless black sheep, even among the children of God, but they can not stay there long. A man or woman may serve God and the devil, apparently, for a *little* time; but it is true, as I stated, and as the Bible teaches, that he will very soon "hate the one and love the other, or else he will hold to the one and despise the other."

Now, then, for the second part of this latter text. If all the world should get married and no little ones were to come into the household, this state of affairs would be nearly as bad as before. The two that became one would be happier and better for being united in marriage; but this other matter of universal suicide would go on as before. Medical journals, scientific journals, and religious journals, have been discussing the matter for years past; and if we look about us we must admit that the "replenishing of the earth" is *mainly* brought about by the ignorant, vicious, illiterate, and sinful. Great organized companies of Christian men and Christian women are laboring to *save* the children of our land, while criminal and intemperate parents are furnishing more children to fill our prisons, jails, reform schools, and possibly mission schools, of our great cities. When the matter comes up, I believe the discussion ends by the belief that there is little or no help for it. But where, pray tell me, dear friends, are the Christian *men and women* coming from in the next generation, if these Christian men and women have *no children* in their own homes? Somebody, perhaps, opposes me by saying, "Look here, Mr. Root, are you going to advise and insist that a cultivated, intelligent, and talented Christian woman shall wear her life out, and go to a premature grave, by trying to take care of a great family of children?" No, I am not going to advise any thing in the way of extremes. I am not going to advise any thing unchristianlike; but I do think that no home can be complete without children; neither can our great nation stand against the machinery of Satan, with so many *childless homes*. As a rule, I rather like good-sized families; but, of course, much will depend on circumstances. Five or six, with proper intervals between their ages, are a power for good for each other, and a power for good for the fathers and mothers. I wish to end now with a little of my own experience; and I hope to tell you, too, how God has *led* me, even though many times I was stubborn and contrary, and did not want to be led.

I have six brothers and sisters alive at the present time. Although father and mother were both faithful Christians (mother is still with us), many of our number were slow in coming into the fold. I shall always feel greatly indebted to a sister a little older than myself for her wise, kind Christian advice at different times in my life. It first came when I was about 22 years old, and my wife was 20. We were yet unmarried, although we had been engaged for two or three years. This sister wrote me a kind Christian letter, and closed by urging us to get married. She said she was afraid to have us wait any longer. She told us not to wait until we were better off, but to settle down and go to work *together*, saying we would accomplish more in every way; that we were losing time, and that it were far better *every way* that we should go to work together. I confess the letter rather pleased me, and I made it an excuse for going to see dear Sue that very evening. She did not need *very much* urging, and I was (and am *yet*) a pretty good hand to plead. I need not say that neither of us *ever* regretted the step. Scarcely a year had passed, however, before we went to this sister with another trouble. What do you suppose the trouble was, dear readers? Why, it was like this: We had planned to have a good time for some *three or four years*, without having our household encumbered with little ones to keep us at home, etc. But, man proposes and God disposes; and—oh dear me! what sorrowful faces we two presented! Well, this good sister spoke something like this: She was talking to me particularly:

"Why, you dear foolish young brother! Here you are, looking doleful about the very thing that will rejoice your heart more than any other event that could possibly happen, or perhaps *ever will* happen in your two lives. Very likely the little stranger will, in God's providence, prove to be a boy; and as you are not yet 25, what a pretty sight it will be to see a father and son, with so little difference in their ages that one might almost be mistaken for the other! You two will go around the world together as companions and playmates. This son (or daughter) will be your prop and stay in your declining years. In *just a little time* he will be the *light of your household* and the *joy* of your hearts."

I have sometimes wondered whether these words were not an extempore prophecy. Did any thing ever come more *literally* true? The new baby was unusually apt and bright. Was it not strange that it *happened* so? Did *you* ever hear of any such babies, especially the *first* one? Why, before he

was a year old he took such a shine to mechanics and machinery that he could understand almost every thing in the *Scientific American*—that is, when his papa pointed to the pictures and *explained* (?) them to him. I believe the first step he ever took was when he was so intent on the pictures in the *Scientific American* that he forgot that no one was leading him. When he was *two* years old, papa took him one Sunday afternoon down to "grandpa's," two miles and a half, *on foot*. Of course, the little chap did not walk *all* that distance; but he walked enough of it, where the roads were smooth, so that the perspiration stood on his dimpled face, and a peachy flush colored his cheeks. How he and his papa did *visit* during that two miles and a half! Grandpa laughed, but grandma scolded. They were sure it would make him sick; but after he had had a half-hour's nap he ran about grandpa's dooryard as brisk as could be. Papa was his loving teacher. What a wonderful fund of strange things there was in this world for these loving two to discuss together! and mamma looked fondly on, rejoicing in her heart that, notwithstanding the devotion between those two, she was never forgotten by either one —certainly not at *this* time. I have room for just one more incident, illustrating God's providence and God's way of rewarding those who fulfill his holy commands, and strive to obey the words of my two texts before us to-day:

The boy whom God sent (even a little before we had got our housekeeping arrangements fixed for his reception) grew as boys usually do, and in due time was an inmate of the Sunday-school. No thanks to his papa, however, for this part of his education. He and his papa were friends just the same. I shall remember as long as I live, I presume, how he looked one Sunday morning after he had his nice clothes on, face washed, hair combed, and Sunday shoes shined up; he came to me with something evidently on his mind. When he was struggling with a weighty problem, or had a question to ask, he had a fashion of walking clear around you, keeping his face right toward you, until he had taken you on all sides, as it were — literally hemmed you in. I knew him well enough to see that there was something on his mind that troubled him as he looked up at me, and then down, while he walked around me and meditated. Pretty soon I said, by way of encouragement:

"Well, my boy, what is it? Let's hear it."

It evidently was no common matter, for he hesitated. Finally he commenced:

"Why, pa, what do you think of Sunday-schools?"

Then it was *my* turn to look down and feel perhaps somewhat embarrassed. I attempted to reply, however, as I usually did, presuming on my superior wisdom and knowledge of the world.

"Oh! Sunday-schools are well enough, I suppose, for folks who like them."

I did not really want to say it to *him*, but I left a little implied, to the effect that different people have different tastes. It was evident that he had not quite finished what he had to say, however, and that the burden was not by any means off his little mind. There was something coming that was harder for him to say, as I could see by his looks. But he looked me fairly in the face, and did his duty like a man.

"Well, pa, don't you think it would be better for *you* to go to Sunday-school instead of going up to the store, or going off into the woods, and things of that kind?"

After having relieved his mind of its burden he was off, hopping around at his play like any other boy, probably without any idea that he had for the time changed matters about so that he became teacher, and the father became pupil.

It was a very short sermon, and it came from a very small preacher; but it hit the spot more than any sermon I had ever heard. I was in a tight place. Had it been anybody else than that boy—the boy whom I loved, perhaps, more than I loved my Creator at that time—I should have resented such interference. He had done his duty like a man, and I could not tell *him* that I would do as I pleased. I could only answer, with downcast eyes, "Perhaps it would." After I had spoken the words aloud, I kept saying to myself, "Perhaps it would; perhaps it would." Other agencies were at work at the time to bring me where a father ought to be; but his question was the hardest of them all to get over. Dear reader, I *never* got over it. It was not many Sundays before I went *with him* to Sunday-school, and I have never passed a Sabbath *since* without attending a Sunday-school somewhere. I had never thought of it until just lately, and I did not give my boy any promise as to what I would do; but I promised the Master, and I am very glad to be able to say that the promise has never yet been broken. Did anybody teach him to say this to me? Surely not. It was not like him. His mother was a praying woman, but it was not like her. Hold a minute! Perhaps somebody did tell him; and was it not He who said, "Suffer little children to come unto me, and forbid them not"? We read in Holy Writ, "A little child shall lead them;" also, "God hath chosen the weak things of the world to confound the things which are mighty."

Now, friends, with the above in view, let us consider God's command in our two texts to-day. When my sister wrote me that letter, there was some danger that I might have drifted away and never been a married man at all. Again, when she gave us that kind Christian counsel, had we poor sinful mortals in our narrow-sightedness been permitted to have *our* way, our household might never have been gladdened in the way I have told you of; and had not that brief little sermon come to the ungodly father just as it did, I might have been—who shall say where?—instead of pleading with you as I am doing to-day for Christ Jesus. If any Sunday-school boys or girls are in the habit of reading these Home Papers, let me bid them to remember the influence that is oftentimes vested with them; and let me bid them to stick to the Sunday-

school; and to the praying mothers whose eyes rest on these pages, let me say, "Dear sisters, be ye not weary; for in due season ye *shall* reap if ye faint not." And lastly, what shall I say to fathers who have not yet made their peace with God? Do not delay, dear brothers. Remember the faithful wives — those who have, perhaps, prayed long years for you. Do not, I beseech of you, harden your hearts against these gentle influences. "Except ye become as a *little child*, ye can not enter into the kingdom of heaven."

Our Own Apiary.

CONDUCTED BY ERNEST R. ROOT.

THE WEATHER.

THE weather, for the most part, during the past month, has been either cold or rainy. We have had only a few days in which the bees gathered pollen. The buds are making an attempt to open, but the weather forbids. Soft maples have been out for nearly a couple of weeks, and during the few days that bees could fly they were gathering some

NEW HONEY AND POLLEN.

I believe that somebody said that the soft maple yields no nectar. It may be true in some localities; but for Medina it must be a mistake. There is no other source from which the new honey *could* come. That it has been lately gathered, is evidenced by the fact that it spills out of the combs when the latter are handled roughly or turned to a horizontal plane.

HOW OUR BEES WINTERED OUTDOORS.

We put into winter quarters last year, on their summer stands, in chaff, 150 colonies. Two have perished. A few others had to be united. The rest were in fair to good condition.

OLD OR YOUNG QUEENS FOR WINTER.

One fact seems to stand out plainly. Our now strongest and best colonies had, last fall, young queens. Queens that were two or three years old have not begun to equal, in point of strength and brood-rearing, the colonies of their younger sisters. We have observed this fact before, but it was never before so noticeable as during this spring, because we never before had so many old queens in the apiary. This may be one of Manum's secrets of success in wintering (see his report elsewhere), namely, that he *will* have young queens in his apiary. Young queens in the cellar had the best colonies.

OUR COLONIES IN THE CELLAR.

Out of 42 in the cellar, we lost nine—three by starvation, three others because they were very weak in the fall, but we took our chances on wintering them; and the three remaining died from unknown causes. Well, now, this does not speak as well for the indoor as for our outdoor method; but when we come to examine into the causes, perhaps we shall not notice very much difference after all. The colonies outdoors in the home apiary had not been used for filling orders during the past season, consequently were in good condition in the fall and hence ought to winter well. With such assistance as Neighbor H. could render us, we used the basswood apiary—the apiary that was wintered in the cellar—exclusively for filling orders for bees and queens. The result was, the colonies of this apiary were very greatly reduced in strength, not only from the heavy drain of bees and queens that had to be taken from them, but from neglect. After the loss of my horse I found it many times inconvenient (our other horses being in use) to visit the basswood apiary as often as was necessary for a queen-rearing apiary. The consequence was, that some cells failed to hatch, or some queens would be lost in fertilization, and whole colonies would be left queenless for a week or ten days, and this was along during the fall. For a similar reason we found it a little inconvenient to feed. They were not fed until they were taken back to my house just preparatory to putting them into the cellar. At the time they were fed, many of them would not take down syrup, and hence they were in rather poor condition. But I thought, perhaps over-confidently, that in the cellar they would surely winter. Well, as I stated, three died from starvation. That was no particular fault of the cellar or method. As it was rather late in the season, we put the bees on rather shorter rations than we would otherwise have done, outdoors. The three weak ones had old queens, and it is pretty evident that they died shortly after they were put into the cellar. The few bees left dwindled away. Perhaps I should say that one of these three had a bottom-board on, and the other two did not. Of 42 in the cellar, some seven or eight had bottom-boards. If I was ever satisfied of one thing, it was that those colonies which had no bottom-boards were in much the better condition. One colony in particular, which had a bottom-board, was a stinking mass of bees, and the few that remained seemed tired of life. A large, strong, and prosperous colony in the fall was then dead on the bottom-board, in a white mold. A bottom-board with a weak colony is not nearly so bad as with a strong one.

THE DIBBERN BEE-ESCAPE.

I have already tested this to a limited extent. I put some combs into a hive one day when the bees were flying well, and allowed them to get started on them so that it was a real case of robbing. I then placed a cover-board on top, with a hole, over which was placed a Dibbern escape. The entrance was then closed. The robbers passed out quite readily. But only one out of several hundred bees that I watched succeeded in getting back into the hive; and I venture to say he did not know how he got there, and I doubt whether he succeeded in making an entrance again. Although the hive was full of robbers, about half an hour afterward there was not a bee in the hive, although there were hundreds of them flying around on the outside, trying to get in. This test is by no means conclusive, but it is favorable.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

GARDENING FOR MAY.

WHY, friends, the very mention of the matter fills me with energy and enthusiasm. Talk of trips to foreign countries! talk of holiday excursions! talk of entertainments in the great cities! talk of concerts and distinguished musicians! I would rather have a holiday to make garden in the month of May, than any other enjoyment or pleasure that this world has to offer. Of course, now, I am not speaking or thinking particularly of spiritual enjoyments—the thrill that comes to one who sees his labor rewarded in trying to save a soul from sin. In my talks about gardening for May, I meant particularly the harmless and innocent enjoyments that this world can furnish; but at the same time my ideal garden would ultimately *help* to save souls from sin.

Now, please do not misunderstand me. I should not enjoy making garden as most people do it. There are only a few gardens, comparatively, that are up to the standard, or that "fill the bill," if I may use the expression. That visit to J. M. Smith, of Green Bay, Wis., was satisfying; the market-gardens round about Arlington, near Boston, were satisfying; but nothing short of soil worked up to its highest condition would ever satisfy me thoroughly. People often come nowadays and look into our greenhouses and at our plant-beds in the open air; and they usually break forth into expressions of surprise at the crops, and then they say, "Oh! no wonder you get great crops when your ground is manured and worked up like that." I feel a little sad sometimes to think there are so few people who care enough about fruits and vegetables to pay the price, or, if you choose, take the pains to let Nature show what she *can* do. Almost everybody admits that it pays, and pays well; but yet only a few care enough about it, or have a love for that sort of work. Quite a good many also start out with enthusiasm, but pretty soon their energy wanes; the garden is neglected, and then they become disgusted with it. After one has *succeeded*, however, in getting great crops, and has got his ground into such trim as friend Smith and I have ours, his enthusiasm rather increases.

The purpose of my talk to-day is to see if I can not get some of you *started* so that you will *not* "peter out" after awhile. If this meets the eye of some one who has a real love for these things, let me tell him how to go to work. You *can* make the business pay away out in the country, say two or three miles from any town; but the nearer you come to some town or city, the better. If you can not have a town or city, get into a village (I *like* villages), and get right up close to the stores and groceries, if you can. Find a vacant piece of ground that is not obstructed by out-buildings on the south, so as to cut off the sunlight, and you can pay as good a price for the ground, almost, as anybody can pay, for any other purpose. Yes, it will pay you to take a *building-spot* at the ordinary price that building-spots are worth. Then if you can find some more ground just back of this spot fronting the main street, get that. If you can not buy it, rent it and get the refusal of it, so that nobody will get in your way when you need more room. As soon as you get the land in your possession, set up a sign of your business in the shape of vegetable-plants. Get some tomato-plants, and put them in boxes or pots, and fix them up so nice and attractive that everybody who goes by will stop and look at them and want them. I never saw a community or neighborhood where handsome plants growing thriftily would not command a big price. They are always too scarce. Look out and have a good lot of them ready the first time we get a summer shower. Put a good price on the best of them, or you will find you are sold out slick and clean before you know it. Now, then, work early and late to get more plants. If you haven't a horse, you can make quite a start by digging up your ground with a fork or spading-fork. But you will need a horse sooner or later. I would not think of spading any thing unless it is plant-beds under glass, or beds that are, say, six feet wide and two or three rods long. Make your calculations to move your soil by horse-power. A great deal has been said about the character of the soil to begin with. My friend, with plenty of manure and plenty of water you can make your garden anywhere. A nice sandy loam is a great advantage, but you need not be troubled if you do not get it. I do not believe that there is a reader of GLEANINGS who has a worse clayey ground to start with than we had. If there is a sandbank, or sand of any kind, within half a mile, it will pay you to cart it on to your poor clayey ground. Then hunt up a peat swamp, and get lots of peat to go with the sand. If you can not do any better, you can afford to draw peat a couple of miles. With plenty of stable manure, however, you can get along without any of these. Before you commence doing any thing, however, have your ground *under*drained and "*over*-drained." For the plant-beds on the most expensive ground I would have tile drains every 15 or 20 feet. Where you work the ground by the acre, a drain every 20 or 30 feet will do. Put them down at least two feet and a half below the surface. Now go for the manure. Buy it as cheap as you can. If you can not get it cheap, get it any way. We give a dollar a load for nice old fine manure, and I have seen loads that I would give a dollar and a half for, without any hesitation. Put on the ground as much as you can plow in. After it is turned under, work the ground up fine, and then harrow in a lot more of fine manure. If your ground is clayey, as I have been speaking of, so that when it is plowed it turns over in great big lumps (some of them almost as large as a cooking-stove), do not be discour-

aged, even then. Let the lumps lie and dry until they can be cut up with the harrow and roller. If they will not work up when dry, wait until a summer shower moistens the surface. Then get as much fine dirt as you can on the surface; and when there comes another rain, watch for the golden opportunity—that is, when the lumps are just right to pulverize, and go at them again. Fine dirt is the key to success. I copy the following from a very instructive home-made catalogue, coming from our good friend M. S. Benedict, of Crete, Neb. If you haven't his catalogue, send him a postal card.

The steel rake is a most important factor in garden cultivation in prairie countries. With it a few inches of perfect mulch can be made to cover the surface of the garden or field. The moisture arising from beneath the surface can not get through this covering of finely pulverized soil; neither can the scorching rays of the sun penetrate to the roots of the growing plants. The market gardeners and farmers of the West can not have better advice given them than to depend on the steel rake to prepare the soil for the crop, and to follow up planting with repeated rakings till the plants are large enough for wheel-hoes and horse-cultivators.

Perhaps you say *your* ground can not be made fine enough to be worked in that way. Yes, it can, and I am going to tell you how to do it in the next issue.

Just as soon as you get a garden started, start a compost-heap. This needs to be close by the wagon-road, and at the same time as near the center of the garden as possible. It should also be near the kitchen. Draw on four or five loads of manure. Any thing you can get will do. Make a dish-shaped cavity in the top of the heap, and then beg and borrow all the dish-water and slops you can find. Relieve the women of a part of their drudgery by taking it right out of their hands before they have time to let it stand around; then put into this cavity all the rubbish and trash you can gather up. Teach the chickens to go there and help themselves. They will very soon learn to make daily (and hourly) pilgrimages to this cavity, and will carefully sort it over and scratch it over, taking out what they like. If it should ever get to smelling bad, fork it over. Now, before there comes a bit of rain, be sure you have a shallow trench clear around the outside of this heap, and on the lowest side dig a cavity of sufficient size to hold a good-sized barrel of liquid manure. When it rains, watch carefully that this cavity never runs over. Saturday morning ours was full and ready to run over, with dark liquid manure, almost like dark green ink. While it was raining, one of the boys put on a rubber coat, and with a watering-pot gave every plant-bed a good drenching with this black manure juice. It rained a little all day Sunday; and this morning, Apr. 28, our cavity was full again; and, oh! you ought to see how the plants have just jumped where the manure juice was put. Phosphates and even guano are nowhere compared with it; and yet this manure juice is allowed to run away on thousands of farms! Why, the very rubbish that accumulates around the back yards would make the ground rich if composted in a way such as I have described. All the refuse from the kitchen—odds and ends from the bench where your plants are packed, rubbish from the wash-bench where the stuff is prepared for the wagon, and every thing of that sort, are quickly and profitably utilized in this compost-heap. But, mind you, no matter how hard it rains, you must not let the cavity get full and run over. After you see what it will do for your plants you will very likely begin to regard it as precious—every drop of it—just as I do. It is better to put it on during a rain or shower, and then it will not make the ground bake, neither will it soil the delicate leaves, because the rain quickly washes it off.

Our stenographer was just telling that, after the great cyclone of April 8, which plowed a furrow through this county, he started off on foot across the fields to see the destruction and take some photographic views of it. At one place, about three miles from here, before he got to the devastated district, he says he wondered why the water at the side of the road was suddenly as dark as molasses. Following up the little streams he noticed that they started from a barn about 25 rods from the road, where large heaps of barnyard compost were piled up, and had been piled regularly for years, and there the very life-blood of the farm was oozing out. So strongly was the ground impregnated with this fertility that nearly all signs of vegetable life were absent. He says he leaned over the fence in mute astonishment, and wondered why some men will allow a thing to go to waste when "A. I. is paying a decent fortune to buy it." A still more aggravated case was to be seen nearly opposite this, and the streams containing the wasted fertility of the farms were, in fact, mingling as they made their way to the river below.

A TOMATO TEST OF 1889; TIME OF RIPENING; KEEPING QUALITIES AND GENERAL REMARKS.

The following comes on a printed slip from V. H. Hallock & Son, of Queens, N. Y. The above firm has given the Ignotum perhaps more attention than any other seedsmen, and they give a beautiful colored plate of it in the fore part of their catalogue. When I saw it I had a great desire to give it to the readers of GLEANINGS; but it could not very well be managed without great expense. The following test agrees very nearly with our own experience—that is, in all the kinds we have tried:

RED VARIETIES.

IGNOTUM.—Ripe in 118 days from planting. Fruit kept in good condition, after being picked, 18 days. It is solid, meaty; cooks thick, not watery; of beautiful carmine red, and very attractive to the eye; the largest crop of any tested; many weigh 17 ounces each; flavor of the best—a mild sub-acid, very desirable for table use. It bears the longest of all—until killed by frost. Oct. 12th the fruit was yet good size.

PRELUDE.—Ripe in 122 days from planting. Kept 12 days. Fruit small, prolific; quality good; bears heavy and long.

STATION TREE.—Ripe in 116 days—the earliest. Kept 10 days. Medium size, good flavor, heavy cropper, but does not ripen as fast as some others.

VOLUNTEER.—Ripe in 125 days. Kept 19 days. Large cropper; firm, bright red, sound fruit of excellent quality; bears a long time.

NEW JERSEY.—Ripe in 126 days after planting. Kept 6 days. Good size, solid, and good quality; cracks but little in rain.

MATCHLESS.—Ripe in 128 days. Kept 19 days. Bright red, solid, good quality; large crop, stood rain well.

LIVINGSTON'S FAVORITE.—Ripe in 128 days. Kept 8 days. Fine, large, smooth; good, continuous bearer.

LORRILLARD.—Ripe in 128 days. Kept 15 days. Medium size, good quality, smooth, solid; bears a long time.

PARAGON.—Ripe in 131 days. Kept 9 days. Good quality, heavy crop, and long in bearing.

PURPLE VARIETIES.

TURNER'S HYBRID (Mikado).—Ripe in 130 days. Kept 5 days. Large to very large; some wrinkled; large crop, ripen in a short season; can't stand rain.

ACME.—Ripe in 128 days. Kept 5 days. Medium size, smooth; good crop, solid, good.

CLIMAX. Ripe in 128 days. Kept 7 days, longest of any purple. Good bearer, smooth, solid; cracks in rain.

YELLOW VARIETIES.

GOLDEN TROPHY.—Ripe in 128 days. Kept 5 days. Best of the yellow varieties.

GOLDEN QUEEN.—Ripe in 124 days. Kept 5 days. Good bearer; nice, handsome looking.

While no one test is ever just right or final, this is certainly given without favor or bias, and just as they proved themselves during the past most unfavorable season.

Please note the vast difference in keeping qualities between the red and purple varieties, the former proving far superior in this respect. V. H. HALLOCK & SON.

Please note above, that the Ignotum is the earliest with one exception, and that is only two days earlier. Burpee's Matchless I should put next to the Ignotum, and some of the friends place it ahead. It is very much like the Ignotum. All things considered, we believe our former verdict pretty near the truth—that there is no better tomato in the world than the Ignotum.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: $1.00 PER YEAR, POSTPAID

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 1, 1890.

Blessed are the pure in heart, for they shall see God.—MATT. 5:8.

WE have at this date 9841 subscribers.

THE hand that rocks the cradle is the hand that moves the world.

DEATH OF THE INTRODUCER OF THE CHAPMAN HONEY-PLANT.

WE have received the following notice from the friends of Mr. Chapman:

Died at his home in Versailles, Catt. Co., N. Y., April 8th, 1890, Capt. H. Chapman, aged 80 years. Mr. Chapman has been widely known as a horticulturist, but in later years he has given much of his time to the culture of bees, and was the first to introduce to the public the celebrated Chapman honey-plant. He was an early pioneer in the town where he has lived for half a century, and his loss will be deeply felt, for he was a man of sterling integrity.

I shall always remember my pleasant visit at the home of our good friend Chapman. While he was not doing very much then in the line of market-gardening, his tools and facilities for the work convinced us all that he had been one of the moving spirits in this line of work. He was quite an enthusiast, also, with bees, especially after he took so much pains to develop the plant that bears his name. Probably no other plant has been cultivated exclusively for the *honey* it bears, to the same extent as this one on Mr. Chapman's own grounds.

STARTING OUT WITH ODD-SIZED FRAMES, HIVES, SECTIONS, ETC.

WITH our present rush of business and great number of orders on hand for regular-sized goods, we must decline for the present making any thing odd-sized. While we are sorry to do this, we are at the same time glad to give a wholesome lesson to those of our friends who are so stubborn and contrary as to refuse to fall into line and use such bee-supplies as other people do. If you start out with the fixed purpose of making your own supplies, you may get along very well to a certain extent; but sooner or later there will come a time when you will want to exchange, swap, buy, or sell, and then you are not only in a bad predicament, but you inflict damage and injury on those with whom you have deal. Now, we have expensive automatic machinery, arranged to make work of a certain size. The machine is buzzing away day after day on regular goods, doing the work with accuracy and beauty. When we are behind on orders, as we are at present, to have some one send in an order requiring that this complicated and expensive machine be pulled to pieces, and changed for something else, while others are waiting for *regular* goods, really seems preposterous. Every time the machine is changed there is a liability of inaccuracy in the adjustment when put back to its proper work; and with our factory of thirty or forty *new* hands that have been crowded into the service, the chances for mistakes are ever so much greater. These new hands could run the machine right along on its regular legitimate work; but to stop it and adapt it to something else that no one else ever heard of, requires not only an old hand, but an expensive one. After the odd-sized stuff is made up, boxed up, and sent off, it is not uncommon to hear that the things were not made as wanted, or perhaps not as ordered. A great part of the time these things of odd dimensions are ordered by somebody who does not know even his A B C's in bee culture. In the present state of progress, business should follow in beaten paths and regular channels. In the fall of the year, when we have not much to do, we are quite willing to make rat-traps and perpetual motion, if any of you want to foot the bill; but we can not stop our *regular* work to attend to such things *now*.

SAD NEWS FROM G. B. LEWIS & CO.

MR. ROOT:—We beg leave to inform you that our factory and office were burned to the ground Saturday last at about 2 A. M. The cause of the fire is unknown. We were running at the time. We have already rented another factory, and will be prepared to fill orders for sections very soon. We would advise you, however, not to wait for us to supply you. We were out of 1 15 16, and had to make them. We had them about ready to ship, but were yet in shop, and all burned. We shall commence rebuilding at once, and will build about three times our former capacity. G. B. LEWIS & CO.

Watertown, Wis., Apr. 21.

The above is sad in a good many ways. As our friends will gain from the above, a carload of sections was finished, ready to ship us, and they had our order for still another carload. We sincerely hope that they may be able to start up again with very little delay, not only because it will throw a great mass of orders upon us when we are already overburdened, but because of the disappointment it will probably cause to many of the bee-friends in getting their supplies—another illustration of the importance of sending your orders early, and having your stuff ready before it is time to use it. We presume likely that our Wisconsin friends were not rigged as we are with automatic sprinklers; but wouldn't their loss and trouble at the present crisis have paid for the sprinkling attachments a good many times over? Surely water should be cheap and handy in a place named *Water*town. I hope our friends will excuse this poor pun, for we sympathize with them most fully in their mishap. Perhaps their well-known prompt habits will enable

them to hold their trade, and we are sure they will very soon be in better shape than ever before to furnish the world with bee-hives and section boxes.

LATER.

We wrote you that you might take out our advertisement; but we now say, leave it in; and if you will kindly say, when you notice our loss, that we have leased another place, and, with assistance of outside shops, will, we think be able to fill our orders in a few days, we shall feel obliged. We think we shall be able to fill your orders also, but we do not ask you to wait; and, in fact, we want all customers who have orders with us to order them canceled if they feel they will be delayed too long. G. B. LEWIS & CO.

Watertown, Wis., April 23.

In addition to the above we earnestly entreat the customers of G. B. Lewis & Co. not to withdraw their orders, but to help our friends out of their trouble by letting them fill them as soon as they can. Should you ask for your money back, and then send it to us with our present mass of orders before us, it will probably delay you longer than to let them remain where they are. We are very glad to see our friends getting on their feet again so rapidly after their great loss.

The following comes from the Falconer Manufacturing Co.:

MR. ROOT:—We are very sorry to hear of the loss of Messrs. G. B. Lewis & Co., and your letter was the first intimation that we had of their misfortune. We are likewise sorry that the sections they were loading for you were burned also. We notice that you have guarded against a similar loss by the introduction of sprinklers. We placed them in our factory in 1888, and hope, should there be a fire in either your own or our factory, the sprinklers will do all we should expect of them. We note that you are very much crowded with orders, and we are in the same situation, though our facilities are greater, and we are better prepared for a large trade, than ever before. THE W. T. FALCONER MFG. CO.

Jamestown, N. Y., April 25.

We are glad to notice the friendly feeling that seems to exist among our great supply establishments. Even though we *are* rivals in business, we have been for some time helping each other, and we all feel sorrow and sympathy for friend Lewis' loss by fire. We are glad to know that the Falconer Manufacturing Co. put up the sprinklers, even a couple of years before we did. I hope the bee-keepers of our land will exercise forbearance under the circumstances; namely, that we are all pretty well overloaded with orders, and one of us has been crippled by fire.

THE A B C OF BEE CULTURE AGAIN REVISED.

THE 42d thousand of our A B C of Bee Culture is just completed. As usual with former editions, it has been thoroughly revised and likewise enlarged. The present edition numbers 420 pages, size of this, and double column. A picture-gallery of apiaries and honey-exhibits, comprising 16 pages, has been added, and just follows the biographies of noted bee-keepers. The engravings of both the biographical and picture-gallery departments comprise our latest and best, many of them full page. An appendix of some 6 pages has been added by Dr. Miller, and the same are reproduced elsewhere in this issue for the benefit of our readers who may have our old edition. It was found, after the book was nearly completed, that, during the past few months, improvements had come up, and Dr. Miller was accordingly asked to write them up and add such other suggestions as he might see fit to make from the latest revision. The subjects in the body of the book, that have received special revision, are Comb Honey; Feeding (the latter being entirely re-written); Extracted Honey; Hive-making, with a description of how to make the new Dovetailed hive; Queen-rearing, with a brief summary of Doolittle's method of procuring and completing cells in full colonies with a laying queen; Swarming; Veils, and Wintering. The last subject was entirely re-written, so that it is the very latest in regard to the indoor and outdoor methods. The whole subject is well illustrated.

The A B C book sells at the rate of about 5000 every 14 or 15 months, and it was only by getting a new press that we were able to get out the present edition so that our customers would not have to wait. We aim to make each edition of the A B C up to the times—as much so as if the whole book had been written during the year of publication. As it is all kept in standing type, each subject can be revised in accordance with the latest developments. As soon as we can do so practically, we propose to drop the paper-cover edition. A great many of our customers, after receiving the latter, are a little surprised and disappointed that they should get so nice a book in such cheap binding. Although the A B C in cloth costs us considerably more than it did when we first sold it for $1.25, we have decided to keep the price the same, and sell only one kind of binding—cloth. When sent with other goods, so as to save postage, the price will be only $1.10, as formerly.

SPECIAL NOTICES.

12-INCH FDN. MILL IN CANADA FOR SALE.

We have at Millbrook, Ont., a 12-inch fdn. mill that is practically as good as when new, and has made only about 300 lbs. of fdn. It is over the lines, and 30 per cent duty paid. If any of our Canadian friends want it they may have it for $30.00. Better send for samples made on the mill, so that you may know just what you are getting.

THE BRITISH BEE JOURNAL AT A LOW PRICE.

The price given in our list is $2.40, postage included; as we have, however, about a dozen copies coming by way of exchange, more than we have subscribers for, we will furnish it until this edition is exhausted, at just half price—$1 20—for the year 1890. Of course, you will receive the back numbers from January. Sample copies furnished before subscribing, if you wish.

METAL-CORNERED FRAMES.

A good many have inquired if we can furnish metal corners for the wide and thick top broodframes. We answer, no. Our metal corners are made *only* for frames ⅞ inch wide, and from ¼ to ⅜ in. thick. The wire reversing corner will fit *only* on frames ⅞ in. wide. There isn't enough advantage in either kind of corners to justify the expensive machinery required to make them any other size than those we already furnish.

PRICE OF JAPANESE BUCKWHEAT.

We this date withdraw the low price at which we have been selling Japanese buckwheat for several months, and quote, until further notice, those published on page 26 of catalogue, which are as follows: 1 lb., 5 cts.; by mail, 15 cts.; 1 peck, 40 cts.; ½ bushel, 75 cts.; 1 bushel, $1.40; 2 bushels, $2.50; 10 bushels or more, $1.10 per bushel, bag included in every case. We have already disposed of several hundred bushels, and still have a good stock of choice seed.

HONEY-QUEENS.

Last season the progeny of one of our queens was so very much ahead of all other bees in our apiary, in point of honey gathering, that we sold daughters of the queen for a half more than our regular catalogue price. As the queen was an old one, we sent her south last fall to our Southern breeder, and now he reports having a nice lot of honey-queens. These will be sold, as long as they last, for a half more than our regular catalogue prices. Untested, in May, $2 25; tested, $4 50; select tested, $6 75. We are aware that these prices are rather high; but it is early in the seasen yet, and the queens are extra.

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IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

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Mention this paper. **Snydertown, Pa.**

LOST! The old prices on Bee-Hives, and new ones found. Send for circular—FREE.
L. J. TRIPP, Kalamazoo, Mich.
9tfdb Please mention this paper.

Italian Bees and Queens.

Tested queens, $1 50; untested, $1.00. Bees, per lb., $1.00. Frame of brood, 50c; 3-frame nucleus, containing 2½ lbs. bees, 2 L. frames of brood, and tested queen, $4.50. Queens reared from imported mothers. Send for price list.
MRS. A. M. KNEELAND (*nee* Taylor),
9-10d Box 77, Mulberry Grove, Bond Co., Ill.
Please mention this paper.

Queens Ready to Mail

now, and we guarantee safe arrival in any kind of weather. Italian queens, tested, $2 00; untested, $1 00; 3 untested, $2 75. Send for dozen rates. Two-frame nuclei with untested queen, $2.50; $26.00 per dozen in April. Make money orders payable at Clifton. Send for price list to 5tfdb
COLWICK & COLWICK, Norse, Bosque Co., Texas.
Please mention this paper.

ITALIANS For pure Italian bees and queens, and directions to Italianize common bees, address F. H. & E. H. DEWEY, 55 Mechanic St., Westfield, Mass.
Please mention this paper.

BROWN LEGHORNS STILL AHEAD. EGGS, $1.00 PER 13, $1.50 PER 26. A. F. BRIGHT, Mazeppa, Minn.
7tfdb

50 COLONIES OF ITALIAN and HYBRID BEES for sale at $3 50 per colony, in shipping-boxes, L. frames. Also eggs from W. Wyandottes, W. Minorcas, and Pekin Ducks. Eggs, $1.00 per 13.
9-10-11d M. H. FAIRBANKS, Homer, N. Y.
Please mention this paper.

CHENANGO VALLEY APIARY.

Please give me your orders, and try my fine yellow Italian queens; are from imported stock, well known to my customers. Send for circular

Two-frame nucleus, with queen, in June, $2. Tested queen, $1.50; untested, $1.00. 8tfdb
MRS. OLIVER COLE, Sherburne, Che. Co., N.Y.
☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.
☞In responding to this advertisement mention GLEANINGS.

THREE-FRAME NUCLEI,

with queen, $2 25 each, or two for $4.00. Orders booked now for delivery after May 15. Safe arrival guaranteed. Frames, 12¼x9½. H. L. FISHER,
8 9-10d Milford, Kosciusko Co., Ind.
☞In responding to this advertisement mention GLEANINGS.

50 COLONIES OF ITALIAN BEES for sale, in Langstroth hives, at $5.00 per colony.
8-9-10d JOHN GRANT, Batavia, Clermont Co., Ohio.

4-FRAME NUCLEI, Tested Queen, Brood, and plenty of Bees, Italians, for $3.50. Imported queens, $4. W. A. SANDERS, Oak Bower, Hart Co., Ga.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address
R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.
☞In responding to this advertisement mention GLEANINGS.

TESTED CARNIOLAN QUEENS, $2.50 each; untested, $1, or 6 for $5. Send for price list of Italian bees and queens, bred in my Nappanee apiary. 8tfdb I. R. GOOD, Vawter Park, Ind.

VIRGIN QUEENS.

Pure Virgin queens at 50 cts. each, or 40 cts. each per 100. J. B. LAMONTAGUE, Winter Park, Fla. 8-9-10

UNTESTED ITALIAN QUEENS AT $1, and 4-frame nuclei at $3.50, after May 1st. Send in orders now.
4-10db S. J. WAKEFIELD, Autreville, S. C.

FOR SALE - - BEES.

Good colonies in shipping-cases, with 9 Langstroth frames. Hybrids, $3 00, delivered at railroad station any time after May 1.
8tfdb MISS MABEL FENN, Tallmadge, Ohio.
☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**
Please mention this paper.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 200 colonies of bees, in S. hives, for any thing useful on plantation. 1tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tfdb OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange one Green's solar wax-extractor, *new*, for an incubator or Italian queens. G. C. HUGHES, 6tfdb Pipestem, West Va.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange one set buggy harness, worth $10.00, for Langstroth or Simplicity beehives. JNO. GRANT, Batavia, Clermont Co., O. 8-9-10d

WANTED.—To exchange comb foundation for beeswax. Samples on application. 8-11db J. P. CONNELL, Hillsboro, Texas.

WANTED.—To exchange for sections, fdn., honey, or offers, an American fruit-evaporator, No. 2; capacity, 10 to 12 bu. apples per day. For description of evaporator, write to American Mfg. Co., Waynesboro, Pa. O. H. HYATT, 9tfdb Shenandoah, Ia.

WANTED.—To exchange an improved Excelsior incubator, 200 egg size, used only two months, for Italian bees. G. N. DOTY, Clyde, Mich. 10-11d

PLY. Rocks, White and Laced Wyandotte eggs, in exchange for foundation, sections, Japanese buckwheat, or offers. T. G. ASHMEAD, Williamson, Wayne Co., N. Y.

WANTED.—To exchange Simplicity hives; also registered Jersey bull calf, for any thing useful on farm. W. J. KEAYS, Buffalo, N. Y.

WANTED.—An assistant in the apiary; single man preferred. A good chance to learn the business. Write, stating particulars. EZRA BAER, Dixon, Lee Co., Ill.

WANTED.—To exchange fruit-trees for 25 lbs. of bees, with untested queens. Send prices. JAS. HALLENBECK, Altamont, N. Y.

WANTED.—To exchange one garden wheel-hoe complete, good as new, called Planet Jr., for one Green's solar wax-extractor that is in *good* repair. JAMES G. HALL, Wyanet, Bureau Co., Ill.

WANTED.—To exchange automatic handle lathe, for pony planer. W. H. PARKER, Newcastle, Jeff. Co., Ala.

WANTED.—To exchange a good improved farm of 160 acres. Crops on the ground. Every thing ready for business, for apiary or supply business or both. Iowa or Wisconsin preferred. Particulars for particulars. 10d MATTHEW DODDS, Sauk Center, Minn.

WANTED.—To exchange warranted Italian queens, raised from Root's imported queens. What have you to offer? J. H. GARRISON, 10d 6326 New Manchester Road, St. Louis, Mo.

WANTED.—To exchange 23 Simplicity hives and T supers. Make an offer. 10d F. H. MCFARLAND, St. Albans, Vt.

WANTED.—Young man with some experience to help in the work of an apiary. Must be of temperate habits. E. M. JOHNSON, Mentor, O.

WANTED.—Bees in exchange for supplies or cash. Must be cheap. F. C. ERKEL, Le Sueur, Minn.

WANTED.—2000 lbs. of beef tallow. Address A. P. SHARPS, Exeter, Luzerne Co., Pa.

Black and Hybrid Queens For Sale.

I still have several mismated Italian queens ready to mail at once, for 40c each.
S. H. COLWICK, Norse, Bosque Co., Texas.

During swarming season, mismated Italian queens for sale. Those producing worker bees, part of which are black, 30c each. Those producing workers all with yellow markings, 50c.
J. C. WHEELER, Plano, Kendall Co., Ill.

Ten mismated queens, young, 35c each; 3 for $1.
W. W. KULP, Pottstown, Mont. Co., Pa.

Six mismated Italian queens, 35c each; 3 for $1.
CHAS. MCCLAVE, New London, Ohio.

THE BRIGHTEST

Five-banded, golden Italian Bees and Queens, and the **Reddest Drones.** Very gentle; very prolific; good honey-gatherers—working on red clover—and the **Most Beautiful** bees in existence! Took 1st premium at Michigan State Fair, in 1889. Reference, as to purity of stock, Editor of *Review*. Sample of bees, five cents. Untested queens, before June 15, $1.25; after June 15, $1.00. Tested (*at least* 3 bands), $2.00; selected, tested (4 bands), $3.00; breeding queens (4 to 5 bands), $5.00. Virgin queens, 50 cts.; 5 for $2.00. Safe arrival and satisfaction guaranteed. **JACOB T. TIMPE,**
8-15db **Grand Ledge, Mich.**
☞In responding to this advertisement mention GLEANINGS.

That Hundred-Dollar Queen.

$1 will purchase a daughter of this wonderful queen. Descriptive circular free. Address
9tfdb AM. APICULTURIST, Wenham, Mass.
Please mention this paper.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
5tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.
☞In responding to this advertisement mention GLEANINGS.

Pure Italian Queens.

We will sell pure Italian queen bees, bred from pure mothers, by April 1. Tested, $1.00; untested, 50c; two frame nuclei and tested queen, $2.00, or untested, $1 50.
I. GOOD & STEWART BROS.,
Sparta, White Co., Tenn.
☞In responding to this advertisement mention GLEANINGS.

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS*.

Southern Bee-Keepers, Send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.
Please mention this paper.

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—Demand is good for all kinds of extracted honey at 5@8 on arrival. Comb honey sells slowly at 10@14 in the jobbing way. No choice white on the market. There is a good demand for beeswax at 22@26 on arrival for good to choice yellow. CHAS. F. MUTH & SON,
May 1. Cincinnati, O.

MILWAUKEE.—*Honey.*—The demand for honey i not very urgent these days, and the supply seems to be ample for all demands. We can quote best white, 1-lb. sections, 13@14. Medium quality, 11@12. Common and old, 9@10. Extracted, white, bbls. and half bbls., 7@8. Extracted, dark, bbls. and half-bbls., 6@6½. *Beeswax* wanted, 25@26. A. V. BISHOP,
May 11. Milwaukee, Wis.

ST. LOUIS.—*Honey.*—We are entirely sold out of old crop, extracted and strained, and are now prepared to enter the new season with renewed vigor and clean hands. We find the market fairly active at unchanged quotations. Prime beeswax in demand, and scarce at 26.
D. G. TUTT GROCER CO.,
May 9. St. Louis, Mo.

CHICAGO.—*Honey.*—The best grades of white comb are taken soon after arrival at 13@14; but the dark and mixed are slow at about 10. Extracted meets with but a limited sale at 6@8 for best grades, of the different kinds. *Beeswax* is scarce, and yellow brings 27; dark, 23. R. A. BURNETT,
May 8. 161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—Honey unchanged; market very quiet. Cuban strained, 79 cts. per gallon. *Beeswax* very scarce, and higher. We offer light yellow Cuban at 29; dark and gray, 27 cts. cash.
F. G. STROHMEYER & CO.,
May 8. New York.

KANSAS CITY.—*Honey.*—Our honey market is cleaned up; no comb or extracted for sale. We look for new honey within 30 days.
HAMBLIN & BEARSS,
May 9. Kansas City, Mo.

ALBANY.—*Honey.*—We have received 57 cases since last issue. Market is quiet, with prices unchanged. Clover, 12@14; buckwheat, 9@10. Extracted, light, 7@8; dark, 6.
C. MCCULLOCH & CO.,
May 10. 339 Broadway, Albany, N. Y.

DETROIT.—*Honey.*—Best white-comb honey, 13; dark, as low as 10. Extracted, 7@8. *Beeswax*, 26@28.
M. H. HUNT,
May 9. Bell Branch, Mich.

ST. LOUIS.—*Honey.*—Honey slow; season well over; white clover, comb, 12½; fair, 10; extracted honey in cans, good stock, 5½@6½; bbls., 5@5½. *Beeswax*, prime, 28. W. B. WESTCOTT & CO.,
May 5. St. Louis, Mo.

200 LBS. BEES.
50 Italian Queens
AFTER MAY 24 AT $1.00.
S. C. PERRY, Portland, Ionia Co., Mich.
10-11-12d Please mention this paper.

LOOK! GOLDEN ✻ ITALIANS
The rest of 1890 at prices as follows: untested, 50c; tested, $1. Select tested, $1 50. Frame brood and bees, $1.00. All from imported mothers or select stock.
W. M. VICKERY, Hartwell, Hart Co., Ga.
In writing to advertisers please mention this paper.

Japanese Buckwheat ½ bush. 65c; 1 bush., $1.10.
D. M. WEYBRIGHT, New Paris, Ind.

2 Sel't test. It. queens, $1.60 each; 5 test., 85c each. All '89 hatch. W. W. KULP, Pottstown, Pa.

PERSONAL. If this meets the notice of Harry L. Johnson, come home at once; or of any one to whom his whereabouts is known, please write at once to Mrs. E. S. Burnham, Medina, Ohio, and any trouble will be cheerfully recompensed.

ONE-PIECE
SECTIONS
A SPECIALTY.
Sections smooth on both sides, V or nearly square groove, dovetailed ends, or to nail, at $3.00 per 1000.
B. WALKER & CO.,
10tfdb **Capac, St. Clair Co., Mich.**
☞In responding to this advertisement mention GLEANINGS.

Knickerbocker Bee - Farm.
SEND FOR
CIRCULAR AND CALENDAR
FOR 1890 TO
GEO. H. KNICKERBOCKER,
Box 41. Pine Plains, Dutchess Co., N. Y.
10-11d Mention GLEANINGS.

To the Bee-Keepers ✻ ✻ ✻ ✻ ✻ ✻ Of the Northwest,
We would say that we are up with orders, and we can do more than we are doing at present. We have a large supply of hives on hand, and would like a part of your orders. Try us and we will give you satisfaction. We also have about 100 bushels of Japanese buckwheat, and while it lasts we will sell for 80 cts. per bushel. Send for price list.
F. T. HALL, Lochiel, Dunn Co., Wis.
In writing advertisers please mention this paper.

AFTER HIAWATHA.
BY SECOR.
HO! ye gleaners after knowledge
In the field of apiculture,
Stop a moment, please, and read this,
Stop and read this advertisement.
Send and get my creamy MONTHLY,
(I will send three samples gratis)
It contains the views of leading
Bee-men on some special topic;
Points out errors; makes you ponder,
And abandon wrong ideas.
If you'd march with those who "get there,"
Send your stamps to "Hutch the hustler"—
Fifty cents per annum only;
Twelve REVIEWS for only fifty.
Address BEE-KEEPERS' REVIEW,
W. Z. HUTCHINSON, Ed. & Prop. Flint, Mich.
☞In responding to this advertisement mention GLEANINGS.

CHEAP BEES!
READY TO SHIP NOW.
Three lbs. bees and queen, or 3 frames of brood, covered with bees and queen, $1.50 each. Good Italians, L. or S. frame. Safe arrival guaranteed.
G. W. GATES, Bartlett, Shelby Co., Tenn.
☞In responding to this advertisement mention GLEANINGS.

$2.50 FULL COLONY. $2.50
Ten Colonies of Bees, $25.00.
Particulars by JNO. C. CAPEHART,
St. Albans, Kanawha Co., W. Va.
Please mention this paper.

The Bristol Hive,

AND ALL KINDS OF BEE-KEEPERS' SUPPLIES MANUFACTURED AT REDUCED PRICES.

The Poplar Four-Piece Sections a Specialty.

PRICE LIST FREE ON APPLICATION.

ADDRESS TO **DRAKE & SMITH,**
9-10d **Bristol, Vermont.**
(Successors to A. E. Manum.)
☞In responding to this advertisement mention GLEANINGS.

HEDDON'S 1890 CIRCULAR NOW READY.

ADDRESS

JAMES HEDDON,

DOWAGIAC, MICH.

Please mention GLEANINGS. 9-10d

Rheumatism ✻ Bees.

No doubt the best bees for curing rheumatism are pure-bred Italians that prove to be good workers and work on red clover.

We have such if you want good stock to work with and to secure you plenty of honey.

Tested queens in May, - $1.50; in June, - $1.25
Unt'd " " " - - 1.00; 3 for - - 2.50
" " " June, - 75; 3 for - 2.00

For wholesale prices, nuclei, lbs. of bees, and all kinds of bee-supplies, write for our 16 p. circular.

9tfdb **JNO. NEBEL & SON, High Hill, Mo.**
Mention this paper.

SPECIAL CROPS.

A magazine for advanced agriculturists; 25 cts. per year; sample 7 cts. Also, Black Minorcas, B. Leghorns, and S. Wyandottes; eggs of either, per setting, 75 cts.; 26 at one time, $1.00. 4-50d

C. M. GOODSPEED, Skaneateles, N. Y.
☞In responding to this advertisement mention GLEANINGS.

Japanese Buckwheat, 75c Per Bush.

Alsike clover seed, $7.00 per bush. No. 1 one-piece sections, $3.00 per M. Extra nice foundation, thin, 50c per lb.; brood, 45c. Best bee-veil out, only 30c. All supplies cheap. Send for new list free.

22tfd **W. D. SOPER,**
Box 1473. Jackson, Mich.
☞In responding to this advertisement mention GLEANINGS.

BEAUTIFUL BEES are always pleasing to the eye.
GOOD QUALITIES are always profitable.

If you want Bees and Queens that combine beauty and good qualities to a *marked degree*, write for circular giving low prices. No circulars sent out unless applied for. **CHAS. D. DUVALL,**
5tfdb **Spencerville, Mont. Co., Md.**
☞In responding to this advertisement mention GLEANINGS.

HEADQUARTERS IN THE SOUTH.

FACTORY OF BEE-HIVES, ETC.

From now on I will sell my 4-frame nuclei, with Italian queen, at $3.75. In lots of 5, at $3.50 each. Untested queens, at $9.00 per dozen in June; $8.00 per dozen in July. Satisfaction and safe arrival guaranteed. Twelfth annual catalogue.

9tfdb **P. L. VIALLON, Bayou Goula, La.**
Please mention this paper.

Carniolan Queens.

Send for Descriptive Circular to

DR. S. W. MORRISON, Oxford, Pa.
9tfdb Please mention this paper.

STOUT'S AUTOMATIC SWARM CONTROLLER
Price **60c.** For particulars, send for circular.
LEMUEL STOUT, 1215 Market St., Philadelphia.
9-10d Please mention this paper.

E. W. PITZER, Hillsdale, Iowa,

Has the finest of Bronze Turkey eggs for sale at $2.00 per 10. Langshan and P. Rock eggs at $1.50 per 15. Stock unexcelled. Safe arrival guaranteed.

9-10d Please mention this paper.

Bee-Keepers' Supplies.

WHY ✧ SEND ✧ LONG ✧ DISTANCES?

SEND NAME ON POSTAL CARD FOR MY NEW PRICE LIST TO

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.

Formerly of St. Joe Sta., Butler Co., Pa.
ESTABLISHED IN 1884. 9tfdb
Please mention this paper.

ITALIAN QUEENS AND BEES!

The very best honey-gatherers. Untested queen, 80c; tested, $1.00; select, $1.50. Bees, $1.25 per lb. Satisfaction guaranteed. Send for price list.

8-10-12d C. M. HICKS, Fairview, Wash. Co., Md.
☞In responding to this advertisement mention GLEANINGS.

HOLY-LAND QUEENS A SPECIALTY.
Queens at all prices, to suit the times.
GEO. D. RAUDENBUSH,
445 Chestnut St., Reading, Pa.

FOR SALE.—ITALIAN BEES & QUEENS at a very low price. Address
6tfdb *OTTO KLEINOW,*
No. 150 Military Ave., Detroit, Mich.
☞In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS, 80 Cts. EACH; 3 for $2. J. C. KING, Ft. Deposit, Ala.

✕ CHOICE ITALIAN QUEENS. ✕

Tested, $1.50. Untested, $1.00. Tested queens reared in the fall of '89, $1.50. These can be mailed at once. MISSES S. & M. BARNES,
7-12db Pickerton, Ohio.
☞In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON,*
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

Bee-Keeping for Profit

IS THE TITLE OF

Dr. Tinker's New Hand - Book.

It gives his **New System** of the management of bees complete, telling how to get the largest yields of comb and extracted honey, and make the industry of bee-keeping a profitable one. The claim is made that our old methods and appliances are of such a nature that it does not pay even the expert bee-keeper to keep bees except in very favorable localities. The New Book tells why these failures occur and how to prevent them, giving the general principles essential to a profitable system. The work should be in the hands of every progressive apiarist. It is well illustrated, and will be sent to any address postpaid for 25 cts. Please remit by postal note. Address

DR. G. L. TINKER, New Philadelphia, Ohio.

Please mention this paper. 10tfdb

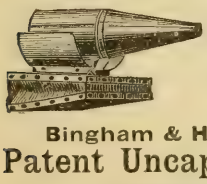
QUEENS.—Fine home-bred Italians, and imported, from Waldensian Valley. Circular free.
10-11-12d CHRISTIAN WECKESSER, Marshallville, O.

FOR CASH.—Italian queens in May and June. One untested, 80c; ½ doz., $4 50; per doz., $8.50; one tested queen, $2.00; per ½ doz., $10.00; per doz., $18.00. Guarantee safe arrival. Address
D. E. ALDERMAN, Clinton, Sampson Co., N. C.
☞In responding to this advertisement mention GLEANINGS.

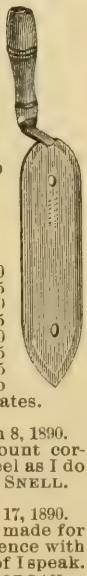
LOOK! Three-frame nuclei with Italian queen from imported mother, $2.50 each. Satisfaction guaranteed.
M. W. SHEPHERD, Rochester, O.
In writing to advertisers please mention this paper. 10 14db

BIG 3-FRAME NUCLEI, WITH QUEEN from imported Italian mother, for $2.50. Full colonies low. Thirty Rose Comb Leghorn eggs for $1.00 Safe shipment guaranteed.
10-11-12d G. W. GILLET, Wellington, Ohio.
☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...	$2.00
Conqueror "	3 "	"	...	1.75
Large "	2½ "	"	...	1.50
Extra (wide shield)	2 "	"	...	1.25
Plain (narrow ")	2 "	"	...	1 00
Little Wonder,	1¾ "	"	...	65
Uncapping Knife.....			.....	1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.
☞In responding to this advertisement mention GLEANINGS.

AH THERE! One untested Italian queen, 75c; three for $2.00; tested, $1.50. One untested Carniolan queen, $1.00; three for $2.50; tested, $2. Bees by the pound and nucleus. Send for price list. Reference—First National Bank.
10tfdb H. G. FRAME, North Manchester, Ind.
Please mention this paper.

☞In responding to this advertisement mention GLEANINGS.

Look Here! Supplies Cheap

Italian and Albino Queens and Bees; Chaff and Simplicity and Nonpareil Hives.
Extractors, Smokers, Foundation, Surplus Section Boxes, Root's Perforated Zinc. Price List Free. Write for One.
A. A. BYARD, WEST CHESTERFIELD, CHESHIRE CO., N. H.
☞In responding to this advertisement mention GLEANINGS.

125 COLONIES ITALIAN BEES AT BOTTOM PRICES. A. F. BRIGHT, Mazeppa, Minn.
7tfdb

BEE-HIVES, SECTIONS, ETC.

WE make the **best** Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3.50 per 1000.
☞ Parties wanting more should write for special prices. No. 2 sections, $2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb
C. B. LEWIS & CO., Watertown, Wis.
☞In responding to this advertisement mention GLEANINGS.

BARRED PLYMOUTH ROCK EGGS, $1.00 per 13. L. C. AXTELL, Roseville, Ill. 8tfdb

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. THOS. G. NEWMAN & SON, 246 East Madison Street, - - CHICAGO, ILLS.
☞In responding to this advertisement mention GLEANINGS.

FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks. Address **N. A. KNAPP,**
4tfdb **Rochester, Lorain Co., Ohio.**
☞In responding to this advertisement mention GLEANINGS.

COMB FOUNDATION.

I have just purchased two more foundation-machines of A. I. Root, and am able now to make foundation of all kinds at the lowest price in the world. Send for sample or price, to
8d JACOB WOLLERSKEIM, Kaukauna, Wis.
☞In responding to this advertisement mention GLEANINGS.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.
J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.
☞In responding to this advertisement mention GLEANINGS.

KIND WORDS FROM OUR CUSTOMERS.

QUEENS IN BENTON CAGES DURING MIDWINTER.

I received two Italian queens, as ordered. They are in good shape. H. M. PETERS.
Fall Brook, Cal., Feb. 3, 1890.

Received the goods ordered of you, in good time and shape. I am well pleased with them. The Clark's starter machine is a good one; does its work to perfection. CHAS. ELLIOTT.
Richfield Center, O., April 15.

OUR GARDEN SEEDS.

The seeds I received from you were good, and I had the nicest garden around here, and that is the reason my neighbors called on me to get their seeds from you for them. HENRY WILLING.
Chesaning, Mich., April 2.

OUR 10-CENT NOSE GLASSES.

The specs are just right. I can read better with them than a pair I paid one fifty for. The prospects are good for a honey-flow. I have had 14 swarms so far. Weather is cold and cloudy. Bees are putting in some honey. G. W. LECHLER.
Newhall, Cal., Apr. 20.

FROM MEXICO; $85 DUTY AND FREIGHT.

The goods shipped to order of J. M. Cupp, Jan. 10, arrived in good condition. Duty and freight on same, $85.00. I am well pleased with them. My bees are gathering honey in large quantities from a wild shrub which grows here. I have had one swarm already. J. J. JOHNSON.
Monterey, Mexico, March 1.

The bees I purchased from you in 1882 were the prettiest I ever saw, and their working qualities can not be excelled. I get more honey per colony than any other bee-keeper in our county, although my bees have been more or less hybridized. Our season is about a month ahead, and the bees are working finely now. M. N. RICE.
Bamburg, S. C., Mar. 1.

THE DOVETAILED HIVE.

I have been nailing up some of those Dovetailed hives to-day; and I would just say to those who want something nice in the way of hives, that they will not be disappointed if they buy the Dovetailed. I find a great saving in freight by having hives shipped as box stuff. Freight on 820 lbs. was $2.04. Goods came in perfect order. L. H. ROBEY.
Worthington, W. Va.

IGNOTUM SPLENDID.

The Ignotum tomatoes you sent me last year were splendid, only the first rotted badly. The Dwarf Champion was fine, and did not rot at all. I had 5 swarms of bees last spring; increased to 10, and got 500 lbs. of surplus. Bees all wintered well last winter. J. KNIGHT.
Elsie, Mich., May 3.

GLEANINGS, I couldn't do without. It touches a chord that no other periodical has ever done, and has helped me to do my duty as a moral man with greater zeal than any thing else. I wouldn't do without it for twice the amount it costs. It is not only a good bee-journal, but a Christian teacher. I pray God to be with you in your endeavors.
West, Tex., Apr. 21. P. T. SOUTHARD.

BEES RECEIVED IN GOOD ORDER.

We received the bees on the 26th. They came all right, and in very good shape, some eight or ten bees dead, which, of course, would be expected. We opened them up and examined them, and saw the queen. She seemed to be happy in their new home, and all have gone to work, and are working bravely. I am in hopes to build up my other colonies and Italinize them in a measure. I received a card from you, stating there was $1.00 due me from discount. I read over your circular hurriedly, and did not notice your discount rates, so I am $1.00 ahead. I thank you for the honorable way in which you do business; and, finally, that is the only true way to do, to make it successful and profitable, and merit the esteem of your patrons; and that has ever been my motto through life, to deal honestly, honorably, and justly with all men.
Fairbury, Ill., Apr. 28. JAS. H. ODELL.

THE CLARK SMOKER; BEES SWARMING IN CALIFORNIA.

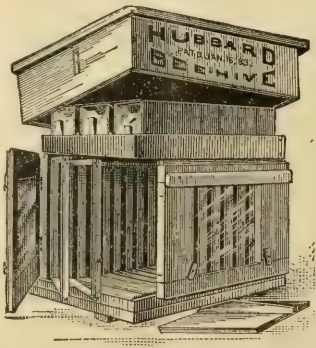
I received one of your latest improved Clark smokers, and have given it a good trial. I don't see *where* there can *possibly* be any more room for improvement. Bees are in the midst of swarming here, and are gathering honey quite rapidly from the blue sage. I have a very nice apiary here. I commenced with 130 stands. I hope you will make up your mind to visit California again in the near future, and not be in such a rush, and be sure to come to Nordhoff. C. A. SAYRE.
Nordhoff, Cal., April 9.

THE ELEVATING TENDENCY OF BEE CULTURE, ETC.

GLEANINGS has been a welcome, profitable paper at our house for several years. Its high moral tone, not only for apiculture, horticulture, and agriculture, but for "*anti-cussedness*," as Josh Billings terms it, in general, and cleanliness and godliness in particular, make it such. Its temperance and anti-tobacco columns have also been very great sources of gratification. I have practiced medicine 33 years, and went through the war as a surgeon, and never smoked a cigar, chewed tobacco, nor tasted ardent spirits in my life. I want to say, however, that I reject nothing, *as a medicine*, placed in our hands by our all-wise Father.

"If a man die, shall he live again?" If a person keeps and cares for bees, and observes their wonderful works and habits, *can* he be an infidel? I am satisfied that, if Col. Ingersoll could be induced to keep and care for bees, the prayers of his father for his conversion would be answered within 12 months. When I am "heavy laden" I go and lie down in the shade by our bees. A few minutes "settles it," and, as by inspiration, I sing, "Praise God, from whom all blessings flow." I keep bees for pleasure, and not for profit, but get both.
Winchester, Ind., Mar. 21. R. BOSWORTH.

FORT WAYNE, IND.



CIRCULARS FREE.
ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.
G. K. HUBBARD,
277 S. HARRISON ST.,
FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.

10c For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied

Please mention GLEANINGS. 8-13db

BEES SEND for a free sample copy of the BEE JOURNAL — 16-page Weekly at $1 a year—the oldest, largest and cheapest Weekly bee-paper. Address BEE JOURNAL, Chicago, Ill.
16tfdb
Please mention this paper.

LOOK HERE!

Bee-Keepers and Fruit-Growers, before you order your supplies for 1890, send for my catalogue and price list of Bee-Keepers' Supplies and Strawberry Plants. Twenty-five approved varieties grown for this season's trade. Prices reasonable. Bees and Queens for sale; $1.00 queens a specialty. Address F. W. LAMM, Somerville, Butler Co., Ohio.
24-23db (Box 106.)
Please mention this paper.

Vol. XVIII. **MAY 15, 1890.** **No. 10.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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FROM THE LAND OF THE PHARAOHS.

THE PYRAMIDS AND THE SPHINX.

Continued from last issue.

WE were drawing near to the largest monuments existing. Although we read and see illustrations of the Pyramids, still it was bewildering, that first sight of those mighty and imposing Pyramids of Gizeh. We visited the greatest of them, built by King Khufu (Cheops of the Greeks), of the 4th Dynasty. It is said that this king employed 100,000 workmen, building daily during the space of 30 years, and it cost 1000 talents of silver, or $1,877,000. It is now 141½ meters high, or about 463 feet. We crawled up and down the high and narrow passages in the interior, conducted by the Bedouins, who are constantly lurking about the place on purpose to guide the visitors. It would be a very difficult task to do without them. The room in which the mummy was laid is covered by great blocks of granite, from 30 to 40 feet long, and 5 to 6 feet square, lying horizontally on top. We visited the great Sphinx of Harmakhas, 22 meters high and 30 in length. The face is somewhat ruined, owing to the fact that the Mamelukes tried their cannon-balls at it. Close beside is the ruined temple of the Sphinx, built of alabaster and granite.

THE WINDING BRIDGE AND THE ELEVATED ROADS IN THE VICINITY OF THE NILE.

We were driving on a long, winding, and elevated road, and landed at a village all surrounded by mud and palm-trees. During the months of the submersion of the Nile, all the *fellahin* (the farmers of Egypt) go to Cairo by boats, as being the cheapest way; and in winter and spring they follow the winding bridge-roads, as they call them. An apiary of about 60 hives, laid horizontally above each other in rows of 10, was the first we saw. They were far more regularly built than the ones at Alexandria. The female inhabitants only were present, and readily told us every thing they knew about bees and bee-keeping—more freely than our Palestine fellahin would. They showed me their implements, much like those of Palestine. They directed me to another village, a few miles away, where I might better satisfy my curiosity.

A MOHAMMEDAN BEE-KEEPER.

We soon were on the main winding-bridge road again. After two hours' donkey-back drive we came to Menshiet-el-Bakari, surrounded by a broad ditch of water; but beyond this were endless fields of (white?) clover. They told me it had white blossoms. I knocked at the door of the designated bee-keeper, an old man, a stout Egyptian, 55 years of age, in a long gown of shirting, barefooted, and a small white cap covering the crown of his sheared head. He came forth, shook hands with me, and began:

"Peace be unto you." My answer, "And to you be peace," was followed by introducing myself to him as an inquisitive bee-keeper coming from the Holy Land, or Land of Damascus, whereupon he bade me welcome. A mat was spread on the floor in front of the most imposing apiary I had ever seen of the kind. We squatted down. I explained to him the intention of my visit, and away we went, chatting, as if we had been old friends. The Hugh Mustapha seemed very communicative; and having handed me a tiny cup of coffee and drank one himself, the usual compliments were exchanged.

"Please God it may always be so" (the presenting of coffee). He replied, "Please God it may be double health to you." He began:

"By the life of the most mighty God and the prayer of Mohammed, I 'm going to tell you every item, and all the truth," and bade me write down

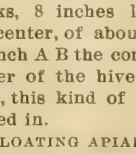
every word, "so that, when you'll be back to the land of Damascus you may apply this most rational bee-keeping amongst the ignorant people there."

The front view showed the most beautiful, regular, and well-kept apiary I ever beheld in all Syria, Palestine, or Egypt. The apiary consisted of 600 hives, lying in 6 rows of 100, horizontally above each other.

About the middle of January the bee-master opens all the hives from the back side, and, with a lighted smoker in hand, throwing gentle puffs of smoke into each hive, listens for the wooing of the queen. He then, if any queen-cells are visible, cuts them off the edges of the comb. He does this in view of the swarms. By this method he seldom has more than one swarm per hive, for he dreads a multiplicity of swarms—a great nuisance to the parent hive, besides being themselves very weak. He says he has only the trouble of swarming them, and finally of finding them destroyed by the wax-moth or hornets. When this business of cutting cells is all done, the hives are again stopped from front and rear. About two months after, he again visits the hives to take the honey, which he expects to find full as long as the clover-fields are in blossom, and the bees visiting them eagerly.

In places where cotton grows, two honey-harvests can be had, and he gets an average of 8 lbs. per hive. The clover remains in blossom during four months, or till about the middle of May, at which time the drone massacre begins, as the bees don't like them crawling over the nice honey-combs, soiling them.

He leaves in every hive five combs of brood and honey, so that they have a good start to refill their hives. New swarms are treated the same. He takes off the old hives five combs, with brood and honey, and sets them in the hive. To take the swarm, the combs are fixed in the new hive by means of sticks, 8 inches long, and having a branch in the center, of about an inch in length.



On this branch A B the comb is hung. The inside diameter of the hive being just 8 inches in diameter, this kind of movable system is easily fastened in.

A MODERN FLOATING APIARY ON THE NILE.

In years gone by, when he was able to undergo more hardships, as soon as the honey-flow in his place was over he used to take the hives, stopping the entrances, load every sixteen hives on a camel, and take them (by night) to the Nile, some 3½ hours' walk, where they were put on a boat, and taken up or down the river to a place where plenty of honey-producing flowers were still in bloom. The boat is anchored at its destination, and marked. As soon as the honey-flow begins it is indicated by the sinking of the boat. As soon as the mark has gone one meter below the surface, he knows the hives to be full; and after cutting out the honey he examines the boat anew. If this ingenious balance indicates a continuation, he remains in the place; but if, on the contrary, such a place is looked for as having flowers, or if none are to be found, the product is sold in Cairo on the return trip.

AN EGYPTIAN BEE-SMOKER.

The smokers are only bovine cakes, made from halfa-eating-cattle manure, as all other manure from broad beans and clover is a nuisance to the bees, and communicates a bad smell to the honey. Each smoker is 8 inches long, and is lighted at the top, and is to be kept by blowing continually. I told him of the improved Bingham and Clark smokers; but to all my observations he would not listen, he having arrived at a degree of knowledge not to be surpassed by anybody else, and as being the owner of 1100 hives in three apiaries, the most considerable of which was the one before which we were joyfully talking and listening by turns about the blessings of apiculture. It consisted of 600 hives, as above-mentioned. He had 200 or 300 hives in his out-apiaries, and, besides, took charge of all the apiaries in the vicinity, sharing all the income (swarms included) on halves. He told me there is none to equal him in knowledge; and all bee-keepers from far and wide have acknowledged his superiority, the same coming to ask him questions. He went on describing his ways and manner, and as it was now half-past eleven, and being Friday, the *muezzin* (the caller for prayers) reminded them of their duties. PH. S. BALDENSPERGER.

Jaffa, March 5, 1890.

Friend B., we congratulate you on the happy way in which you have recounted to us your exceedingly interesting account of your visit to one of the bee-keepers of Egypt. I am surprised that you say nothing about the vindictiveness of the Egyptian bee. Those brought to our country some years ago were so terrible to sting that the whole race was soon stamped out of existence. And so it is indeed true, that there is a man living who has formerly made it his business to run a floating apiary on the Nile. Why, our good friend Perrine should make a visit to Egypt on purpose to learn how, and then come back and revive his steamboat apiary. It seems to me that those camels must have been exceedingly docile to submit to carrying 16 hives of bees. I wonder if they have as much trouble in moving bees with camels as we do with horses and wagons, supposing the bees chance to get out of their hive. And, again, these clay or crockery hives, one would think, would be rather fragile for a camel's back, or for loading on to boats. Never mind, even if our friend would *not* listen to any thing you had to tell him about Clark and Bingham smokers. With his 1100 hives, his out-apiaries, his floating bee-palaces, and camels, he certainly is entitled to considerable respect. Who knows but that he may visit us some time in the future? What a grand thing it would be to have such a chap to attend a bee-keepers' convention! The very self-conceit that he has so strongly emphasized is one of the results of staying at home. Now, may be this last remark strikes a clip at some of you. Well, I do not care very much if it does. Staying at home, when carried to excess, dwarfs and impoverishes both body and mind.

FEEDING BEES, ETC.

SOME QUESTIONS ANSWERED BY DOOLITTLE.

A CORRESPONDENT wishes me to answer, through GLEANINGS, the following questions: "What is the best method of feeding bees, and when and what shall I feed to stimulate brood-rearing?" I suppose that, of course, our correspondent knows that stimulative feeding is for the purpose of arousing the bees to greater activity, and for greater resulst

in brood-rearing; hence when daily feeding is resorted to, but little should be fed to each colony, which, as a rule, should be given just at night, or near sundown, so as to prevent robbing and demoralization. There are different ways of giving this feed, such as feeders of various kinds kept by all dealers in supplies; by tipping the hive up a little in front when a tight bottom-board is used, and pouring the feed in at the entrance, or in at the top over the bees, and by filling the combs with feed, and setting one such comb in the hive every few days. When plenty of empty combs are at hand, I prefer the latter plan, and do not know but that it stimulates the bees to as great extent as by any other way; the reason why I prefer it, being that it is much less work. To fill the combs with the feed, lay one flat down in a wash-tub, wash-boiler, or something of the kind having deep sides, so as to prevent the feed spattering about the room, when with a quart dipper, whose bottom has previously been punched full of small holes (punching from the inside out), the feed is dipped and held up about a foot over the comb, so as to fall in fine streams into the cells, thus driving out the air, and filling each cell full. Now turn the comb over, and fill the other side, when it is to be hung up to drain a little while, after which it is ready to be placed in the hive the same as a frame of honey. If a person has but few colonies, and likes to work at them, daily stimulative feeding is only a pleasure; but with hundreds of colonies it is very laborious, and is considered by many to be only a waste of time, especially when the colony has plenty of honey in the hive. The feed to be used at this time of year is made by dissolving two pounds of granulated sugar in one pound of boiling water, and it is ready to feed as soon as it is cool enough not to burn the bees.

TWO QUEENS WITH A SWARM.

Next he asks: "Do bees ever have two queens? Last summer I hived a swarm that had two queens, and my neighbor tells me that there were two swarms." The first, or prime swarm, never has more than one queen with it unless the old queen has been killed by some accident, for the old queen always goes with this swarm, leaving maturing queen-cells in the old hive, from which, when hatched, the young queens lead out all after-swarms. The only exception to this is where the old queen is lost, as hinted at above, near the swarming season, when several queen-cells will be formed so that young queens may lead out what appears to be the prime swarm, the same as they do after-swarms; but such swarms can hardly be called prime swarms. About eight days after the first swarm has issued, the first young queen will be hatched, as a rule; but if after-swarming is considered best in the economy of the hive, the young queens are kept in their cells, and fed through an aperture in the royal cell, by a little knot of bees, say a dozen or two. If swarming is not considered "economy by the bees," then all the other queen-cells are torn down and the young queens destroyed, so that the first hatched is the only queen in the hive. If the cells are protected as above, the first-hatched queen seems to get in a rage and utter shrill notes at intervals, called "piping," which our questioner has doubtless heard. This is kept up for two or more days, when the second swarm, or first of the after-swarms, issues. The queens kept back in the cells are growing in age the same as the one which is out, and so it often happens that, during the hurry and bustle of swarming, the knots of bees leave the queen-cells, when these young queens hastily finish biting the covers off their cells, and go out with the swarm, in which case there are two or more queens with a swarm, so that you were probably right and your neighbor wrong.

WHICH WAY SHOULD HIVES FACE?

He next asks: "Should a hive face north or south?" All bee-keepers agree, I believe, that hives should never face north of an east-and-west line, and the majority favor a south-easterly direction—at least, that is *my* preference. The reason for this is, that the sun entices the bees out to work earlier in the day, while a northern exposure keeps them in later; and in winter, where wintered on the summer stands, it is almost sure to result in the loss of the colony, from our rigorous north winds blowing in at the entrance, and the confinement of the bees, caused by the entrance being in the shade on mild sunshiny days. The only colonies I ever tried to winter facing the north died before spring.

SHADE FOR HIVES.

The last question asked is, "Is it best to have a roof over the hives, or have them under a shade-tree for shade?" Some of our best bee-keepers use a shade-board made of lath, or light lumber, to shade the hives during the summer months; but if the locality is at all windy, a weight of some kind must be used on them to keep the wind from blowing them away. Years ago I used a 15 or 20 pound stone to keep these shade-boards on, and considered them necessary at that time; but as it had to be lifted every time the hive was manipulated, it soon became so laborious that I could not follow it. Shade-trees (not very dense) are always good; but after all kinds of shade have been tried by myself, I now prefer to paint the hives white and let them stand in the sun. G. M. DOOLITTLE.

Borodino, N. Y., May 3.

Friend D., I should hardly agree with you in regard to the danger in having hives face to the north. In arranging our hives in the hexagonal apiary, a great number of them faced northward; but we have not noticed any particular difference, unless it was during the cold and chilly winds in the spring of the year. I believe I pretty nearly agree with you in regard to painting a hive white, and leaving it in the sun.

EXTRACTORS FOR CALIFORNIA.

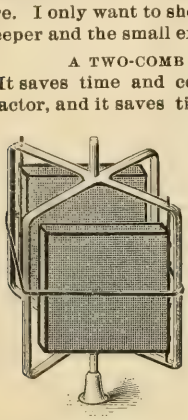
J. F. M'INTYRE DECLARES IN FAVOR OF THE REVERSIBLE PRINCIPLE.

Friend Root:—I take it for granted that you feel the same with regard to extractors that you do with regard to Italian bees and other races. You say you could sell one race as well as another, and want to know the truth. I do not know the state of bee-keeping in the east, but in this county it is almost entirely in the hands of specialists. If you will turn to page 734, 1889, you will see all the bee-keepers in this county, with the number of bees each has. A few years ago there were three times as many bee-keepers, and several of the smaller ones on the list have sold out since that report was made. I have bought Jepson out, just below me on the list. You see he had 75 colonies and a Novice

extractor. I have every thing now except the extractor, which is still ying on the ground where his apiary was. Now, I do not mean to insinuate that the Novice extractor was the cause of his failure. I only want to show you where the small bee-keeper and the small extractor are going.

A TWO-COMB REVERSIBLE GEAR.

It saves time and combs to have a reversible extractor, and it saves time and temper to have all the baskets reverse at once, without hitting each other. I have such a high opinion of the reversible baskets that I would use them, even in a two-comb extractor. I would have the axle attached to the frame above and below, but not run clear through, and place the baskets so close together that they would just pass each other by turning one at a time, like this.



M'INTYRE'S TWO-COMB REVERSIBLE EXTRACTOR.

I think the above extractor would be a good one for a man to take with him to extract a small out-apiary, and bring it home in the evening; but we don't do that way in California. All our out-apiaries are large, and we have a complete outfit at each apiary, and a man to take charge of each one for the season. Sometimes he must have an assistant; and it would never do to give them a poor extractor, or one that would break down; they might get lazy, and lay the blame on the extractor.

Although much thought has been spent on some arrangement to turn all the baskets at once, the basket itself is the greatest invention, and I should like to know very much who invented it, for I owe him a debt of gratitude.

The reversing principle illustrated on page 841 has several advantages over the Stanley. It is easier to put the combs in and take them out; the baskets never hit each other, and you don't need any experience to reverse it. If you don't want to reverse it with the crank, you can key the frame fast to the axle, and leave the cog-wheel in the center loose, when, by turning one basket, all will turn.

I have no use for a brake. I uncap two combs while the extractor is stopping. If you ever make a four-comb reversible, try the one on page 841; and if the workmanship is as good as the principle, I know you will be pleased with it. Any one is welcome to make and advertise them; and if some one doesn't, I shall say it was for lack of a patent.

Baker & Barnard, Ventura, Cal., made several; but they had no facilities for making them, and the workmanship was poor. They made enough, however, to show that the principle was all right.

Fillmore, Cal., Mar. 31. J. F. McINTYRE.

Friend M., Ernest had an engraving made of the inside of a two-comb reversible extractor before I knew any thing about it, and he did it without knowing that we once made extractors on this very principle — namely, without any center-shaft. I think they were abandoned because they cost quite a little more, and at that time most of the people were ordering and using a cheaper extractor. It would be hard to say who invented the comb-basket. I think our German brother Mehring used wire cloth for supporting combs first in extractors; and as soon as reversing the combs inside of the extracting-can came up, there was no other way but to make a *basket* to hold the comb, with wire cloth on each side. The idea illustrated above *i. e.*, of omitting the center-shaft, is very old. It was described if not illustrated as much as 15 years ago. To be sure, friend M., we want the best extractor in the world, no matter where it comes from; but I think it very likely true that large apiaries, such as you have in California, necessitate larger machines for extracting than are ordinarily used in moderate-sized apiaries about here.

BROODING STICKS OR AIR.

DR. MILLER CONSIDERS THE MATTER.

I AM glad, friend Root, that you and Ernest don't always agree. It sometimes gives us a chance to see both sides more fairly. I hope you will always let your disagreements, more or less, come out in print. I'm "ferninst" you in the trianguiar controversy on page 277. Don't you think you're a little unfair in your illustration—just a wee bit, you know? You are calling the top-bars "right in the center of the brood-nest," and they are not in the brood-nest at all. True, the bees in harvest time must keep every thing warm to the top of the supers; but at that time it doesn't cost much. Even if it should cost something to keep the extra lumber warm, what does that lumber take the place of? You know well enough, that, with nearly all of us, it is a choice between slat honey-boards and thick top-bars that is now under consideration. Now, which is easier to keep warm—a piece of wood or a piece of air of the same size? In either case there is the same distance between the brood-combs and the sections—the same space to keep warm--but the wood is easier kept warm than the air, for the air is such slippery stuff that, just as the bees get it warmed up, away it slides, and a fresh piece of wind must be warmed by the bees, So, you see, if brooding "sticks" is bad, brooding wind is worse; and please tell us what you would have in place of the thick top-bar.

But I think Ernest is astray in his claim that "thick top-bars cause the combs to be built clear to the bottom-bar." I can't find the correspondence to which he refers; but were not the combs in question raised over other combs? I can hardly imagine how the bottom-bar can be affected by a top-bar several inches above it.

REVERSIBLE BOTTOM-BOARDS.

If combs will be built down to bottom-bars by means of extra space beneath, and if that extra space can be maintained without detriment all the year round, we shall owe friend Murray a vote of thanks. That will allow me to discard my reversible bottom-board, at the same time retaining all its advantages. I may say to friend Green, that, although his objections are not great compared with what I *think* are the advantages, yet I am not as well pleased as I expected to be with the reversible bottom board. The reversing is too troublesome. If, however, I can't have the deep space in summer, I shall continue to reverse.

CLEATS FOR HIVES.

I'm glad to see H. R. Boardman have the hardihood to say a word in favor of them. If I adopt Dovetailed hives, *my* Dovetailed hives will have cleats at front and back, I think.

HANDLING HIVES WITHOUT BOTTOM-BOARDS.

By reading Bro. Boardman's excellent article on page 280 I see the reason why he can handle them and I can't. He has deeper frames (I know that by reading the picture), and he waits till colder weather. As I don't want deeper hives, and don't want to wait till cold weather drives my bees off the bottom-boards, I think I shall never again leave them to be lifted off the board at time of carrying in. Indeed, I doubt whether I shall ever again carry a hive into the cellar without having the bottom fast.

COMB-BUILDING WITH CAGED QUEENS.

On page 281, friend Root, you ask whether I have noticed "changing from worker to drone comb after caging the queen." No, I don't think I ever noticed any difference. But then, how could I? The only comb they build is in the supers, the brood-frames being full, and every section is filled full of worker foundation. Yet it is quite possible that bees do not build comb so freely without a queen. I do not know whether there is any difference between caging the queen and taking her entirely away. The bees will nearly always build queen-cells with a caged queen, just as much as if no queen were in the hive; and I doubt whether better queens can be started in any other way. You see, the bees don't get frantic about being queenless, but gradually conclude that the queen lays so poorly that she must be superseded.

Marengo, Ill., April 19. C. C. MILLER.

Very likely you are nearly right, doctor, in regard to brooding sticks, but I should prefer to have as few sticks, or as little air either, between the brood-nest and the sections as we can get along with. I am inclined to think that friend Murray is right about having more space under the combs. I do not think it would be found objectionable, either winter or summer. Will those who have tried it please give us their experience?—Now, look here, old friend, if you insist on having cleats on the back and front of your hives to handle them by, you can not get them so closely together. Why don't the hand-holes answer every purpose as well as the cleat? Is it not because you have always used the cleats, and have got used to them?—In regard to comb-building with caged queens, while it may be true that they will not build comb as well, is it not also probably true that they do not gather honey with the same energy? Where the queen is taken entirely away, I can hardly believe that honey-storing will go on with the same rapidity.

FRANCE'S SHOT-TOWER BEE-HIVE.

FULL PARTICULARS OF HOW TO MAKE, ETC.

As I have so many letters asking for dimensions to make my shot-tower bee-hives, I will try, with the aid of some pictures, to give directions so anybody can make them. But first let me say this hive is to be worked for extracted honey only, and to be wintered outdoors on the summer stand, with very little or no increase. The hive when complete will hold four very large colonies of bees.

Each division will be 13½×13½ inches inside, and 3 feet 6½ inches high above the bottom-board; will hold two sets of 9 frames, one set above the other, as shown in Fig. 1. Make the bottom 32 inches square. That will give room for a 2-inch lining all round, and one inch for partitions.

You can see by the figures how the hive is made. All the lumber not wide enough to make any part of the hive must be tongued and grooved together. One partition should be 32 inches wide, and 3 feet 6½ inches high. Nail this across the bottom, in the center; match the partition lumber. We now want two narrow partitions to put the other way. Be sure to set the partitions up square with the bottom, and break joints with the narrow and wide partitions. When the partitions are in, make the stationary sides. They will be 16 inches wide, and long enough to reach from the bottom of the bottom-board to the top of the partition. Nail this on to the left-hand corner as seen in the cut, to the end of the partition and to the bottom of the hive, and leave half of the ends of the partition uncovered to form a rabbet for the movable sides to rest in. The sides will be better if made with two boards matched than it would be made from one piece 16 inches wide.

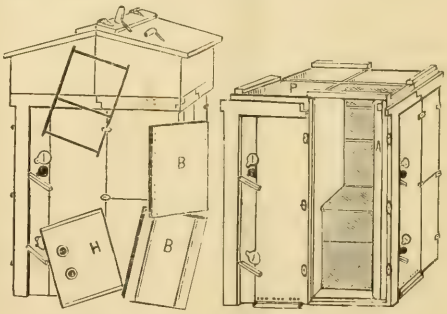


Fig. 2. Fig. 1.

FRANCE'S SHOT-TOWER HIVE.

In Fig. 2 you see the cover is held up by a cleat 2 inches wide around the hive, half of which is fastened to the stationary side, the other half to the movable sides, and half an inch below the top of the siding. This holds the side-pieces together when the side contains more than one board. There is a four-inch strip up and down the left corner. That is put on to form a rabbet for the other side of the movable sides, and should project beyond the side just the thickness of the lumber of the door or movable side.

In Fig. 1, entrances are shown. Those bottom holes explain themselves. The other two holes are 1½ inches, with a half-inch hole at the left of the large hole. Those two large holes are covered with a button in winter, leaving the small one open, as shown in the lower one. In the summer we leave the entire hole open, as shown by the upper one. There is a little alighting-board just below the out-entrances. It is better to make those entrance-holes and put on the upper cleat before the side is nailed on. After the stationary sides are on we put a two-inch lining on the inside of the stationary sides. You see the edge of one of those linings at A, Fig. 1. Take strips of lumber one inch thick and 1½ wide; nail in a strip to the side in front, up and down, even with the side, and another back in the corner, and a short piece between them at the bot-

tom. This bottom-piece must have a passage cut out of the bottom of the piece for a bee-passage. We line up on the inside with half inch lumber. If the lumber is dry, put it from front to rear.

About those bee-passages, or entrances, through the lining: We want for each hole a block 1½ inches thick, about three or four inches square. Bore a 1½-inch hole through it; put those blocks in between the side and the lining, to correspond with the holes through the side, and nail through the lining to hold them in place. Fill in between the outside of the hive and inside lining with some kind of packing. We use chaff, well packed in, as we are putting in the lining. Put a piece 1½ inches on top of the chaff, so the lining will be even with the top of the hive. We nail a 1½-inch strip across the open side. Let it reach half across the partition at the left-hand end. This piece is for a tie to hold the side from springing off.

We want two loose cushions, shown at B, Fig. 2. Make them 13½ inches wide, and half as long as the distance from the bottom of the hive up to the top, so they will just slip in under the tie. They will be about 21¼ inches long, 2 inches thick, one side boarded up with half-inch lumber. The other side is covered with cloth. Eight-ounce duck is what we use. Fill them with chaff. On the lower cushion, Fig. 2, B, there are two strips, ⅜ of an inch, nailed (on the board side of the cushion) to secure a passageway for the bees between the cushion and the outside of the comb. Put the cushions in with the board side next to the bees. The movable sides are made in two pieces, cleated at each end. The lower one rests on a cleat that is nailed on the bottom-board, and beveled a little outward to carry off any water that gets into the joint. It is held in place by buttons. The upper half-side rests on the lower one, and has a two-inch cleat across the top, and halved on to the cleats that are on the stationary sides. This cleat helps to hold up the cover. There is a pair of buttons near the top of this door to hold it in place. Fig. 2, H, standing on the ground is one of the honey-boards cleated at each end, made just large enough to cover one of the divisions, when it reaches half way across the partitions. They are laid on loose. Be sure that they lie down tight, so no bees can go under them from one division to another. Those two holes in the board are for a feeder to be set over them, in case we want to feed. We keep the holes covered with wire cloth, when not wanted for feeding. The lower set of frames stands on the bottom of the hive—see Fig. 1. The upper set stands on top of the lower set. We cut strips of perforated zinc 2 inches wide. These we place, one on each side of the lower combs, for the upper frames to stand on.

Hanging on the hive, Fig. 2, is an empty frame, top end down. They are of pine, ⅞×⅞. The bottoms of the side pieces are cut off on a slant, so the frame stands on a point. The top ends are left square. The frames should be 20⅝ inches long. The top-bar is cut 13⅝ inches long from point to point, and projects beyond the side bars (engraving is not strictly correct), and are cut off on a slant of ⅜ of an inch. The bottom and middle bars are 11¾ inches long, cut square. Put the bottom-bar up about an inch from the point of the side-bar, and the middle bar up more than half way. The top-bar is nailed on to the ends of the side-bars. Each end of top-bar should extend ⅜ of an inch beyond the sides.

To keep the frames apart the proper distance, we drive into the back side of the frames four common three-penny nails—two in the top-bar, one near each end, and a nail in each of the side bars about four or five inches up from the bottom. Drive them in so far that the width of the frame and what sticks out of the nail will be 1½ inches. In use, set in the first frame with nails back against the back of the hive, and each frame after. The nails will do the spacing. The hive will hold nine frames and the movable cushion.

For a cover (see Fig. 2) we use a board under the eaves, 7 inches wide, the gable board 12 inches at the peak. By reference to the engraving you will see that the cover is in two pieces, and hinged with heavy four-inch strap-iron hinges to hold the two halves together. We put in between the gables two four-inch strips—one on each side of the peak under the roof-boards; nail through the gables into the ends of them. This makes three thicknesses at the ridge, so it will not sag in the middle. When the roof is all done and the hinges on, we next saw the gable-end boards in two in the middle. The two half-roofs are now held together only by the hinges, so that, in working with the bees, we don't have to take the cover off, but turn one half over on to the other half; then we can work two colonies, after which we can reverse the cover, and work the other two. In the winter we fill the top chamber with straw or chaff cushions, but we leave the honey-boards on, putting the filling above the honey-boards.

For a stand to set the hive on we use good strong stakes, three feet long, of good durable timber. We sharpen the ends and drive them into the ground nearly the whole length, so as to leave five inches out. This forms a square of 30 inches. We then drive a fifth stake in the center, after which we level all with a good spirit-level. Nail two four-inch strips of inch lumber across the top of the stakes, 30 inches long, and a short piece on the middle stake; see that the stand is level and out of wind. Then set on the hive. Don't let the ends of the strips stick out beyond the hive. They will take water under, and rot the bottom of the hive. On top of the hive are two of our smokers.

Platteville, Wis., April, 1890. E. FRANCE.

No doubt many of the friends think the shot-tower hive a complicated matter, and some will ask why it is better than an ordinary hive. Perhaps it is not any better for the majority of bee-keepers, but it is certainly larger. The hive is so big, in fact, that the bees never get out of stores, rarely get weak in numbers, and they have so much room they seldom swarm. All these things fit it eminently for an out-apiary, when it is not to be looked at, perhaps, for weeks at a time. Now, I may have got it wrong; but if I am correct, friend F. sometimes takes a barrel of honey from one of these hives at a single visit. In fact, the hive is so well arranged to take care of itself, that a great deal of the time all he has to do with them is to go and get his barrel of honey whenever the bees have gathered the barrel full. Remember, each comb is toward 14x20 inches square, and there are 72 of these great combs in each hive. Now, if these combs should average 5 pounds each, you have your barrel full, and more too. But please do not go and make a great lot of

them to start with. Make one hive and see how you like it. Then make more if you want to. You need not use combs of the dimensions given above, unless you choose. In fact, friend France has a great many hives using the ordinary Langstroth comb instead of the above. In this case he has 80 in the hive instead of 72. Of course, each hive must have four queens. The whole thing is really the tenement hive that was discussed so much perhaps ten or more years ago.

THE WORLD'S FAIR.

DR. MASON MAKES AND CALLS FOR SUGGESTIONS CONCERNING THE EXHIBIT OF BEE-KEEPERS.

I HAVE received several inquiries from readers of GLEANINGS in regard to an apiarian department at the World's Fair in 1893, and have promised to keep the readers of the bee-journals posted, in so far as I can in regard to the matter.

Nothing is yet known as to the plan upon which matters will be conducted; but I have been corresponding with the committee at Chicago, and have been assured that, when the time arrives to lay plans, our specialty will be properly recognized and provided for.

Each State is to have two members on the board of managers. The Ohio members were appointed by the governor three or four days since, and one of them is a resident of Toledo. I saw him the same day he received his appointment, and had a "chat" with him about our desires, and he promised to do all he could for us.

While the managers are getting ready for business, we as bee-keepers ought to mature our plans and be ready to submit them when called for; and that they may be as complete as possible, I suggest that all interested in the success of the apiarian department, whether intending to be exhibitors or not, send me such suggestions as to them may seem appropriate. We all have more or less interest in the success of the enterprise, and no one person is likely to make the best possible plans; but if each will contribute a share we shall not fail in making a grand display—one that shall be a credit to us, and a great public educator.

It seems to me that we ought to improve to the fullest extent the opportunity thus presented to us, to show the world something of the magnitude of our industry; and that, notwithstanding the misrepresentations and frauds practiced on an "unsuspecting public," bee-keeping is an honorable pursuit, and bee-keepers honorable business people.

It is much to be desired that the honey-exhibit be grouped all in one place, and supplies near by in another group, each State and foreign exhibit to be by itself, and cared for by a superintendent who will assign space to exhibitors, and receive and care for such things as are to be placed on exhibition, and not accompanied by the exhibitor. These superintendents should be named by the State bee-keepers' society and confirmed and paid by the State, and should be such men or women as are fitted for the place.

I shall try to have an apiary established on the grounds, the colonies to be in all styles of hives, from the old hollow log up to the most improved styles in use; and near by the apiary a plat of honey-plants in full bloom can be made an added attraction. Such honey-plants as will bear potting could be placed profusely among the honey-exhibits, adding very much to their attractiveness. Such plants as can not be potted can be pressed and mounted, and used in the decoration of the displays. I should like to see such from all parts of the world. I will help by giving the needed instructions to all desiring to aid in the work, but I hope all will bear in mind that I'm doing this work "free gratis for nothing," and will not fail to "inclose stamp" in all cases where a reply is needed.

There is lots of work ahead, and I hope each will lend a "helping hand," and send on suggestions, and not wait a year or two, for plans and arrangements will probably be largely made within a few months; and if I should need to meet with the managers of the fair in Chicago in a few weeks or months, I shall want to know the minds and wishes of those interested, and be prepared to present matters in the best way. So, send on the suggestions.

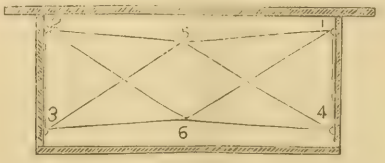
One party has already written that he will make a display of the finest bees the world can produce, and will work to that end from now on. Send on the suggestions; for if 'm to take the lead in the matter I shall just b · your servant to carry out your wishes. A. B. MASON.

Auburndale, O., May, 1890.

WIRING FRAMES.

A NOVEL AND PRACTICAL METHOD.

I HAVE just been timing my boy wire Langstroth frames my improved way, and it's such an improvement on the old way that a brief description may benefit some of your many readers. Much has of late appeared in bee-periodicals upon the subject, and many able bee-keepers think it does not pay, for the reason a novice can not do it; that it must be done by skilled labor, and that costs money. My boy has just wired 10 frames in 15 minutes, while I held the watch, which would be equivalent to 400 per day. Not a very difficult job, is it? I had W. T. Falconer make me a lot of frames—sides, ends, and bottom-pieces, ⅜ inch thick, comb-guide left out; ⅜-inch blind-staples are driven into the end-piece, the top one being ⅞ of an inch from the top, and the bottom one ½ inch from the bottom-bar. A small wire nail held in the blind-staple when driving in makes them all uniform in depth. Now put the frame together and fasten it in a clamp, see cut, having the inside of



E. D. KEENEY'S NEW WAY OF WIRING FRAMES.

the frame open space. Now measure off from your coil of wire (not spools, for that kinks and bothers) 2½ times the length of your arm, or from your nose to the ends of your fingers (noses vary some), and this will be within a few inches of the required length. Now put one end *up* through No. 1 staple, down through No. 2, up through No. 3, down

through No. 4, and fasten. Now draw the wire tight from 4 to 3, back to 2 and 1, at each staple pulling the wire up or down to fasten it and keep it tense.

Now take the other end of the wire and run it over the wire at No. 5, and to No. 3 staple; draw until the wire has the angle shown in cut. Give the wire a little pull up or down, to fasten; then pass to No. 2, thence under the wire at No. 6, and back to staple No. 1, and fasten. You now have a frame whose whole weight is held by the end instead of top bars, which does away with all sagging top-bars. With foundation cut the exact size of inside of frames, fastened well on these wires, there has never been with me an iota of sag. In fastening I use melted beeswax with brush to tack the foundation edges to the frame, that it might be exactly in the center, top, bottom, and ends, when done. This way has given me several thousand frames of comb, as even and true as so many boards, and I have yet to see the first top-bar sag. I have tried the same thing with the *regular* thickness of L. or S. frame, and found them too light; but ⅜ thick, all the way round, is just right.

Arcade, N. Y. E. D. KEENEY.

Our friend's letter came some time ago. When I first read it I did not think much of the plan; but when I examined it a little more closely, I became convinced that it was *a good thing*—yes, the best method of wiring that has ever been proposed, in my humble judgment; and this opinion is shared by the others of the establishment—A. I. Root included. The frame is very securely and thoroughly wired, and yet without the least particle of bowing of top or bottom bars, or even end-bars. The whole thing is held by four staples, or, preferably, hooked nails. The plan is exceedingly ingenious; and whether friend K. was the first to suggest it or not, he deserves the thanks of bee-keepers for demonstrating its practicability, and for calling our attention to the matter. The great point of superiority in this method of wiring is, that the strain comes at the four corners—points at which there is the greatest strength in the frame. The weight is taken entirely off the top-bar. Theoretically there can be no sagging, because the points of the wires, 5 and 6, are so firmly braced in such a position in the comb that the center is securely supported, and, as far as practice is concerned, observe that Mr. K. says that his method has given him "several thousand combs, as even and true as so many boards." "And," he adds further, "I have yet to see the first top-bar sag." This is remarkable, as he uses them only ⅜ inch thick. Besides this it combines the advantages of the horizontal and perpendicular wiring. Unlike the plain horizontal wiring it can not bow out, as has been spoken of by some of our correspondents; and, unlike the perpendicular wires, it does not pull down the top-bar. Mr. K. says that his little boy can wire at the rate of 40 an hour. With the perpendicular plan we have been using, our experts think they do very well if they get 25 an hour. If our friend will excuse me, I want to make what I deem an improvement on his plan. Instead of using staples, which are liable to pull out, as I have found by experience, use 1¼-inch wire nails driven through from the outside. They will then project inside an inch. With round-nose pliers form a hook on the end. It will be evident that it will be much more rapid to wire *on hooks* than to *thread through* staples. Our friend has to retrace his wiring at one end of the frame. To avoid all retracing, and to make all wiring sustain the foundation, and to overcome the inconvenience of one long wire kinking, use two wires, both of which will be very nearly the same length. Commence wiring at 1, then pass to 2, 3, and 4 successively. At the latter point, fasten; start with the other wire from point 3; pass over wire 5, hooks 4 and 1, thence under the wire at 6, and back again to 2, and fasten. I have tried friend K.'s plan and the one just outlined, and find that I can not only wire a great deal faster, but a great deal neater and better, and at the same time avoid all retracing. My nails stick out far enough so that the perpendicular wires on the side help support the foundation against the end-bar. With such a frame we have two perpendiculars and eight diagonals. We avoid the bowing or sagging of any of the bars, and can dispense, best of all, with that naughty folded tin bar. It is not even necessary to have the frames pierced. The plan can be applied to any frame, with thin or thick top-bars, or double top-bars. There may be some objections to the plan, which I have not yet seen. Within the next few days we shall test it thoroughly in our apiary. If you do not see the advantage of this method of wiring, take four 1¼-inch wire nails, and wire in the manner I have described above. If you do not feel enthusiastic over it after looking at the nice work, and the rigidity, I shall miss my guess. ERNEST.

In addition to what Ernest has said, I want to call more special attention to the perpendicular wires parallel with the end-bars. When we first commenced wiring frames we had a space of perhaps 2 inches between the last up-and-down wire and the end-bar. Very soon they told us there must be an up-and-down wire within half an inch of the end-bar of the frame, or else the sheets of wax would swing around, away from the wood. With the 1¼-inch wire nails it is an easy matter to make these up-and-down wires just ½ inch from the end-bar.

THE BEAN-WEEVIL.

A SERIOUS DANGER THAT THREATENS BEAN-GROWERS AND BEAN-CONSUMERS.

I HAVE a letter from C. F. Parker, Chattanooga, Tenn., in which he incloses beans infested with the bean-weevil—*Bronchus obsoletus*. He requests me to describe the life-history of this beetle, in GLEANINGS; to state where the eggs are laid, and to give, if possible, some cure for the evil. Mr. P. remarks that lima—in fact, all kinds of beans—are subject to attack.

This little beetle is hardly more than 3 *mm.* (1/12 inch) long, and has a beak, hence the name weevil. All weevils have a more or less prominent snout. The back looks yellowish gray, from the hairs that

densely cover it. On the wing-covers are longitudinal stripes of darker, lighter color alternating with each other. These bands are separated by a narrow black line of punctures, which looks very much like a seam on a garment. There are ten of these bands on each wing-cover. The head and thorax are quite uniformly yellowish gray over the entire surface. The eyes are black. The antennæ are brown at the base and at tip. These horn-like organs slightly enlarge toward the end. The enlarged club is black, except the last joint, which is brown. Beneath, the color is gray, with a tendency to brown, which is marked at the tip of the abdomen and the outer half of the legs. The wing-covers appear shortened, and the abdomen is truncated, or cut off at the end. It does not run to a point, as seen in most beetles.

This beetle passes the winter in the beans. Like most weevils it comes forth some time before it can lay its eggs. It may often be seen flying as we plant or sow our beans, yet waits till the pods are formed before it lays its eggs, when it lays several, often, opposite each bean. The eggs hatch, and the footless, maggot-like grubs, feed upon the rich substance of the beans. They usually leave the germ, so that the bean, though hollowed out by the insects, may grow if planted. In the beans the grubs grow and mature unless eaten by man or beast; and, snugly packed in the tunnel which they have formed by their own food-taking, they pass the winter, and the round of life is completed. We see that these beetles much resemble the pea-weevil, except that the latter are much larger, and but one weevil is found in a single pea.

HOW TO FIGHT THEM.

Bisulphide of carbon, one of the best and most powerful of insecticides, is the best remedy for these pests of the gardener. In Northern New York the growers of peas and beans have special houses in which to use this liquid in killing the weevils. D. M. Ferry & Co., of Detroit, use tight boxes or casks for the same purpose. The beans are put into the box or barrel; some of the liquid—a little goes a long way—is poured in and all closely covered, with an oil cloth or buffalo robe. The liquid volatilizes; and as it is much heavier than air it penetrates to every insect and kills all. The only caution to be observed is to be careful of fire. The vapor is very inflammable, and, when mixed with air, very explosive; so in using, all fire, like a lighted cigar or a lighted match, must be kept away till ventilation disperses the vapors. As the vapor is very odorous, it is easy to know when danger is past. If no odor is observed, no danger need be feared. This bisulphide of carbon is much used. It is a solvent of rubber, and so is used in shoe-shops to patch boots. It is much used to extract oils from seeds; and on the western prairies it is used by the farmers to destroy the prairie-dogs. A cotton ball saturated with it is thrown into the hole, and the latter stopped air-tight by use of earth. I have used it, as before explained in GLEANINGS, to kill ants.

There has been much discussion as to whether beans and peas hollowed out by weevils would sprout and grow. The truth is, that some will and some will not. It is certainly true, that all would do better if sound; but some varieties will germinate and make a fair growth, even if eaten by the weevils, while other varieties will utterly fail if they have been tunneled by the insects. So here is another case of the shield. Our impression will depend upon the side seen. If one has grown certain varieties, he knows that buggy peas are ruined for planting; another planted a different variety, and is just as sure that the exact reverse is true.

After writing the foregoing, Prof. Cook writes again, which we append below:

Well, friend Root, this is curious. I have just looked over GLEANINGS for April 1, p. 257, and note your request to write up the bean-weevil, after I have sent you an article with its illustration. I do not need to tell you that life keeps getting busier. With my large regular classes—two lectures a day—laboratory work, experiment station, museum, correspondence, and reading, I find little time, at least for mischief. Thus it is that GLEANINGS did not receive attention till this morning.

The late D. B. Walsh said that a good way to save wormy apples is to make cider of them. A noted horticulturalist of Wisconsin said he did not mind the second brood of cabbage-worms—the ones that tunnel away into the head. "'Cause why?" says he: "I use the cabbages for *sauer kraut*." So there is a way to prevent damage from bean and pea weevils that I did not mention; that is, to eat the vegetables while green. This method gives a double advantage: It saves the beans and gives us a mixed diet.

You are quite right in your suggestion. As I state in my article, most weevils come before the vegetables, fruit, or grain, which they attack, so they await its appearance; but they are not likely to remain long after the nidus for the eggs comes to hand. The plum curculio is usually gone before July; so the pea and bean weevils attack only the early beans and peas, and the late sown are generally free. If all were sown late, the escape would not come. The danger of late-sown beans not maturing makes this remedy less practical.

You are also quite right in your suggestion that the insects will not harm the mature beans. They have done all direct damage when they leave the hollowed-out beans. Their further mischief is wholly prospective, and can take effect only upon the green vegetables—the pods where they lay their eggs.

I will send you our Experimental Station Bulletin No. 58, which gives quite fully the method of killing such insects by use of bisulphide of carbon. This bulletin describes all our important insecticides, and tells how, when, and where to use them. A. J. COOK.

Agricultural College, Mich., April 8.

Your remedy, friend C., I think will answer our purpose. We have been killing the bugs, as fast as they got out of the beans, with Persian insect-powder; but I did not know that any thing could be used to kill them *before* they get out. We have picked our beans over, again and again, until the labor seemed to be more than they were worth. I then told the women to look at them every day, for a couple of weeks, and see if the bugs continued to come out; so, picking beans over by hand is hardly a practical remedy. Neither would it do to

sell such beans for table use; and if they are unfit to plant, we might as well boil them for the pigs and chickens. Our only safeguard, for the present, I suppose, would be to plant them late. Is it not a little strange that weevils in beans have never been known until within a very few years past? Can you tell us about how much bisulphide of carbon will be required for, say, a bushel of beans?

BUGGY PEAS AND BEANS.

When I was a small boy, 35 or 40 years ago, my father used to sow a few peas about the tenth of June, so they would not be buggy, and he could have them to cook dry. He raised only black-eyed marrowfats, and sowed broadcast. By sowing late, the bugs, or weevils, rather, were out of the way before the peas were advanced far enough for them to deposit their eggs. I sow several kinds of peas, and invariably find the earlier ones most infested by beetles. I had one season's experience with the bean-weevil when I lived in New Jersey, and I had plenty of them. They look some alike, but are evidently quite different. In peas we generally find but one, and the germ is seldom destroyed, so buggy peas may be planted with the assurance that they will grow with right conditions. The beans frequently had five or six weevils in them. They were not as large as the pea-weevil, but perhaps they did not get enough to eat to make them as large. Late-planted peas are unseasonable. They do not grow or bear as well, and are very liable to mildew. Late-planted beans do better, as they like to grow in the warmest weather. I frequently plant them away up here in New Hampshire the first of July, and get a crop. I never saw a bean-weevil in this State. J. L. HUBBARD.

Walpole, N. H., Apr. 7.

ARRANGEMENT OF HIVES.

FRIEND HATCH CONSIDERS THE MATTER.

To facilitate operations in the apiary there is no system of arranging hives that equals straight rows. Other plans may be more picturesque; and to him who wants to make a big show, the other plans give a better chance; but for the man who keeps bees for the pay there is in it, it gives points of advantage over any other plan of arrangement.

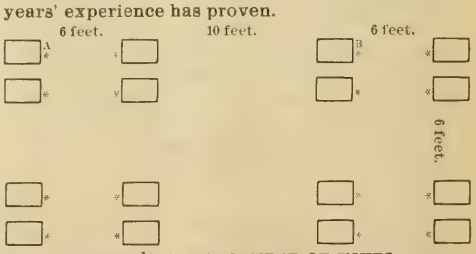
When examining them in a casual manner after setting out in the spring for indications of robbing, loss of queen, as indicated by signs well known to all practical bee-keepers, how much easier it is to walk along the row and examine each entrance and dooryard in regular course than to go from one hive to another, and then not know when you are through! And in swarming time, how much easier to watch for swarms when they are all arranged so you can, at one or two inspections, taking but a glance for each row, determine whether a swarm is coming out or not! and how much easier to find where a swarm came from, if one has come out and alighted while you were at dinner!

In taking off and putting on supers, the advantages are more apparent. Well I remember the backings, turnings, and twistings I had to go through with in trying to get the wheelbarrow close to some hive when I used to arrange my hives hap-hazard, trying to get each at least six feet away from any other, and facing a different way from its immediate neighbor; but with all my care in trying to dodge hives, one would now and then get a "tunk" from some unexpected corner of the wheelbarrow, and I would have to get the penalty in sharp reminders to be more careful next time.

The advantages of the straight-row system may be summed up in — compactness, requiring less room for a given number; ease of accessibility, and best arrangement for inspection.

The old plan of putting hives in straight rows with fixed distances, and all facing one way, has its objections, which are apparent to any one acquainted with the habits of bees, and are not necessary to give here.

I have been using, for two years, a plan that, so far, has developed no defects, and I am indebted to that excellent little book of Dr. Miller's, "A Year Among the Bees," for part of it; i. e., the arrangement in pairs, which is quite an advantage; but I do not like his plan of placing the entrances all one way; and I like each hive to stand on its own support, independent of any other, and I want that stand smaller than the hive, so that, in working close to the hive, there is not so much danger of hitting the stand with the toe of one's boot, to jar the bees. The objection to facing the hives all one way is, that, while you are working at one hive, you are right in the line of flight of the next row in the rear of the one you are working with. The following diagram shows a better arrangement, as two years' experience has proven.



HATCH'S ARRANGEMENT OF HIVES.

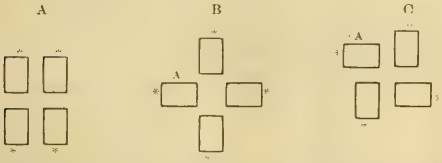
The squares are for hives, with a star to indicate entrances. Hives are to face east and west alternately, in rows; alleys between entrances, 6 feet; alleys between hives, at backs, 10 feet, which is the work alley, the one to run the wheelbarrow in, and to travel back and forth in. You will observe that, while you are in this alley, you are 10 to 15 feet away from the face of any hive, and therefore the bees in their outward flight are far above your head, where they will not annoy you nor you them. If you wish to see the difference this makes, you have but to step over into the other alley, and stand a few minutes, to be convinced.

As to mixing of bees, and queens mistaking hives, although your hives may be as much alike as two peas you will see, by referring to the hives marked A and B, that a bee or queen, to find a hive in just the same position as her own, has to go across two alleys, and 20 feet away—a mistake she is not likely to make, the location alone determining her home. In fact, there has been less trouble from bees and queens mistaking hives with this than the old haphazard arrangement. I think a fair trial will convince any one of its merits. C. A. HATCH.

Ithaca, Wis., Mar. 11.

Your article, friend Hatch, is timely and to the point. I have been studying on this

matter of arranging hives in the apiary, for some time. I have never liked the hexagonal arrangement in our home yard, with grapevines. I thought they were too close; and so when we got down to the basswood apiary we put the hives 12 feet apart, all facing one way, each hive in the shade of a basswood-tree. Much to my surprise I found it took a good deal of time in running from one hive to another. I then came to the conclusion that we wanted them closer together. Accordingly, this spring when we set our bees out of the cellar I arranged the hives in groups of four—hives 12 inches apart, and the groups 6 feet apart. The first group was made like A, the next like B, and so on, each one differing from the other. On the next row we start with C just opposite A. By this arrangement you will see that the entrances were facing in all directions, so the bees could not mistake where they lived. I thought it was very unique, and so I was quite sanguine I should like it. But after I had worked among the bees as so arranged, I became very much disgusted. I could not sit down to work at a hive anywhere without encountering the flight of bees, especially when I took a positoin at A, at groups B and C. The bees, seeing some great object



in the midst of their groups, would stop, hesitate, buzz around, and fill the air. This is, to a certain extent, true when working over one hive; but it is four times as bad when the entrances of the four hives are close together. Group A does very well. But if all were like this it would offer no dissimilar arrangement for the bees. I have been trying to think of some better arrangement, and your plan strikes me as the best of any thing I have yet seen. When our out-apiary is set out for this season I propose arranging it on just that plan exactly. The fact that it is similar to Dr. Miller's arrangement, and the fact that you are one of the most extensive bee-keepers of your State, and that you like it, is much in its favor. The plan of avoiding the flight of bees, in going about with wheelbarrows and such like, is capital. There is one thing which you have omitted to mention; and that is, the facility with which a lawn-mower can be run among hives that are parallel and square, instead of hap-hazard, or on the hexagonal plan. In our hexagonal apiary it is very inconvenient to run a lawn-mower around among the hives, because one hive comes directly in the passageway of the next row. We were obliged to run it zigzag; and we found, several times, that we had thereby given a hive an unlucky "tunk," as you so happily express it. With your arrangement a lawn-mower could be run straight along, clear through the rows, without any zigzag about it. On three sides you would not encounter any entrance. At night the entrance sides should be mown down, when the bees are not flying. Perhaps a good many apiarists do not think it necessary to keep the grass down with a lawn-mower. Of all things I do hate, it is to wade through wet grass, when the dew has been heavy the night previous, in making visitations to the hives. It is only a couple of hours' work a week to run a lawn-mower through a whole apiary of, say, 75 or 100 colonies; and, aside from the neat and orderly appearance, it pays in other ways, for it keeps the bottoms of the trowsers dry, and makes it necessary to wear only rubbers We should be glad to get suggestions from our correspondents. E. R.

In addition to the above, permit me to say that, in most of the California apiaries, they have come to the same conclusion with friend Hatch; that is, having narrow alleys set apart for a pathway or thoroughfare for the bees. The operator is not supposed to go into these narrow alleys at all. As nearly as I can remember, 6 feet was perhaps the width of these; then a broader alley, say 10 or 12 feet, was left for the operator. Of course, he can cross from one broad alley to another, if he chooses; but his general work is to be done in the broad alley; and in opening hives and working with them, the narrow alleys are not to be occupied. The bees seem to recognize this narrow alley as their own allotted highway; and when they are working heavily the narrow alleys are literally full of buzzing bees, while the broad ones are comparatively free. These double rows of hives with a double alley between them, may center, like the spokes of a wheel, toward the door of the honey-house. I would suggest to friend Hatch that his hives may be in straight rows, and still be on the hexagonal plan; and this plan gives each hive a greater amount of space than we can get in any other way.

CRATING AND MARKETING HONEY.

Continued from last issue.

I HARDLY know whether this fact should be more emphasized or not; at all events, hardly any one likes candied comb honey whether they understand its nature or not, and people who don't understand this crystallizing property of honey say instantly, "Oh! that is manufactured honey, isn't it?" or another says, "That is some sugar you have put in." These friends compare the retail price of honey, 18 and 20 cts., with the price of sugar, 7 and 8 cts., and think there is an immense profit to us in turning sugar thus into honey. Of course, they don't know, nor can we very well explain, that the wholesale price of honey in barrels is about the same as good sugar, thus making it out of the question to adulterate honey profitably. Glucose makes an unpalatable mixture, and can't be counted.

Right here, while speaking of the price of honey, I wish to call some of our dear brethren to account for selling honey so cheaply. One brother sold ¾-lb. glass tumblers for $1.00 per dozen in Toledo. The tumblers cost, any way, 30 cts. per dozen, wholesale, leaving a little less than 8 cts. per lb. for

the honey, put up in small receptacles. Another of our bee-keeping friends has been putting up pint Masons (holding 1½ lbs.) for 20 cts. each, by the dozen. If he gets his jars for 6 cts. each by the gross he is lucky, leaving 14 cts. for 1½-lbs. of honey, and labor of filling, etc. Now, we have disposed of nearly 30,000 lbs. of honey in the past two years, and the bulk of it has been sold at 18 to 20 cts. per lb., and we charge extra for the glass jars. We have sold honey thus in Cleveland, Canton, Akron, Massillon, Newark, Zanesville, Columbus, Findlay, Tiffin, and several other Ohio towns, and in Logansport, Lafayette, Ft. Wayne, and Indianapolis, in Hoosierdom. The above is our uniform experience.

It is next to impossible to find a lot of comb honey that has no pollen in some of the cells. In some way I can not explain, this is an attraction for the moth, and many a disgusting task I have had of cleaning them out of a lot of nice comb honey. To avoid this, sulphur them, of course; but just when to do this with most profit to all concerned, I know not. Perhaps some brother who has had experience in this particular line will kindly inform us.

One thing in regard to the general appearance and quality of honey. Let our bee-keeping friends remember that grocers as a rule will have nice, neat-looking white honey or have none at all. What kind of appearance do you suppose honey presents with all the bee-glue on it, as when removed from the hive? In several instances I have seen comb honey that had been shipped to market in the very cases that held it on the hive, with all the unsightly bee-glue adhering. Why, such a thing is as much behind the advanced spirit of the times as the stage coach or the wooden plow. Let us all remember that beauty and neatness are prime requisites for success in any line of goods we present to the public. People living in our cities have the importance of this matter impressed on them at every hand, and here competition is swift in inventing new and artistic effects. Our farmer friends must bear in mind that this is the class of people who approve or condemn their methods, and use no charity in so doing, but adopt the rigid rule of comparison.

Once for all, let me say, send no dark honey to our city markets. Practically, no one wants it; and you can make more money out of it by feeding in spring to your bees or marketing to private families through the country.

The only way to fight these *infamous lies*, in circulation about the bee-business, is for each one of us to write articles for our home, county, and local papers, where our word is taken as authority. The persistence and scope of these misstatements, no one can fully realize who has never sold honey in the cities and away from home. There would be 100,000 lbs. more honey eaten per year if all who like honey had confidence in what is offered them.

An eminent financier has said, "Confidence is the life of trade," and this is eminently so in the bee and honey business. My brother said once, "If any one ever ate any good honey, and had the slightest suspicion that *we* sold it, he will buy more, without question." H. F. MOORE.

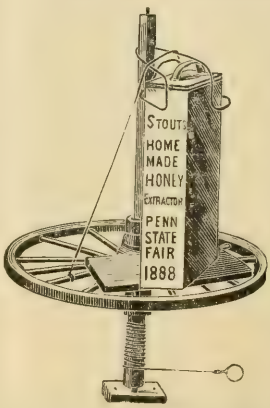
Cleveland, O., Apr. 4.

Friend M., you do not mention our reward cards for these people, but I suppose you have them. I am glad of your caution in regard to unfinished sections of the previous year. This has been quite thoroughly discussed in our conventions, but a great many don't seem to get hold of the whole of it. I am sure the old honey, section and all, had better be thrown away, unless every particle can be cleaned out of the cells by the bees, so as to leave nothing that can start the new honey to candying. Throwing honey out by means of the extractor will not answer. It must be given to the bees to clean off afterward. Our experience with dark honey has been just about what you say. Nobody wants it at all.

A HOME-MADE EXTRACTOR.

ITS MERITS AND DEMERITS.

I INCLOSE with this a photograph of my extractor. It is composed of eight pieces, all of which, or a substitute for most of them, are generally obtainable by what I call an amateur bee-keeper; for instance, a hickory sapling, a few boards nailed together, and the corners cut off, take the place of the wheel; and with ½-inch lumber a box might be made to take the place of the can, or the can might be made from two old five-gallon square honey-cans. For my device I took a long stout pole. The wheel I used was the front wheel of a light wagon. I cut the pole down to 7 feet, the height adapted to my cellar. In the bottom of the pole I drove an iron plug ½ inch in diameter, allowing it to extend about 1¼ inches outside. I then bored a 1¼-inch hole through a piece of hard wood, long enough to be nailed on two joists overhead. I then bored a ⅝ hole in a piece of hard wood, one inch thick and a foot long. I drop a piece of thick tin into this to form a resting-place for the spindle; and having got the pole plumb, I screwed this to the floor. I then put the pole through the wheel, the inside of the hub toward the bottom of the pole, and placed it in position. I next bored a hole 4 inches from the bottom, stuck the end of a ten-foot sash cord through it, knotted it, and attached a 3-inch ring to the other, and wound the cord around it to try how would work (see cut). The rest will be evident from the cut.



We will suppose a friend should call to see me during a honey season, and I should like to give him a taste of honey, none in the house. Well, such is my disposition that, if I had a regular extractor stored away, I would get it down to extract a single frame, to stand treat. Nearly the contents of a 3-lb. frame would stick to it, and a nice job to clean it, while the other can would not waste 2 ounces. Honey could be cleaned with a quart of water, and dried in less than half an hour.

Philadelphia, March 8. S. STOUT.

Friend S., the arrangement you give is substantially very old. The "Rapid" honey-extractor, in the *British Bee Journal*,

some years ago, was on the same plan. While you can extract honey with such an arrangement, especially if you have a few hives, it is not only a very laborious way, but very fatiguing, where very much of it is to be done. It is true, that the honey is thrown into a single tin can, and nowhere else; but a single tin can can be used in any ordinary extractor, where you wish to extract only one comb, or, say, two combs, or more. The objection is, that it forms what is called a revolving-can extractor. The honey swings around with the comb, instead of being thrown out against a stationary can; and as soon as you swing very much honey in this way you will find it very laborious. Every comb that is emptied will necessitate stopping and pouring honey out of the can or cans. I would suggest that, if you are going to use such a machine, instead of a wagon-wheel and hickory sapling, you use simply a light iron or steel rod, with some kind of metal wheel not weighing over a pound.

GEORGIA FOR BEES.

AN A B C SCHOLAR'S EXPERIENCE.

One of my brothers has been keeping bees in this county for over six years, but he has never made bee-keeping a specialty. He commenced with only 13 colonies of the golden-banded Italians, and increased to 35 colonies, and sold $335 worth of honey from them the first year. But as he has been engaged in farming and merchandizing ever since, he has not given them very much attention.

I believe this to be the best country for bees in the South, as we have a large number of honey-producing flowers in bloom here every month in the year, from January until November; and they are no trouble to winter.

Our winters are never cold enough to stop our bees from work. They usually commence to gather pollen in January, and never cease till December. The honey season commences about the first of April, and we take off surplus until the 15th of July. Our honey-producing plants and trees are the yellow jessamine, ground-huckleberry, gallberry, persimmon, magnolia, bay, poplar, and horsemint, and a large number of others whose names are unknown to me. Over two-thirds of our honey is made from the gallberry-bush, which commences to bloom about the 20th of April, and continues in bloom until the middle of June. Our apiary is situated in the center of a gallberry-forest, out in the country, three miles from Sasser, in

"A populous solitude of bees and birds,
And fairy formed and many-colored things."

And while the gallberries are in bloom the bees work from daylight until dark. It is in full bloom now, and it is a pretty sight to see how busy the little creatures are.

GALLBERRY HONEY.

This is the prettiest I ever saw. It is well flavored, very thick, and as translucent as the classic product of Hymettus. I took 52 pounds of as pretty sealed gallberry honey from an upper story yesterday as I ever saw, and I could easily extract 25 lbs. from any hive in our apiary. It is all this year's honey too. I expect to commence extracting in a week.

Mr. Root, I am one of your A B C boys, and will let you hear from me again soon.

WALTER L. ANTHONY.

Sasser, Terrell Co., Ga., May 6.

We have had of late some inquiry in regard to Georgia as a bee-country. The above will doubtless give the information needed.

HONEY-CIDER VINEGAR, ETC.

PUTTING REFUSE HONEY INTO THE VINEGAR-BARREL, ETC.

Dear Gleanings:—Your pages fall under the eyes of multitudes of people, embracing many shades of thought, and representing a great variety of interests. Though the chief interest centers in the busy bee, your readers are treated to other sources of vital interest to society, and to individuals. There really appears to be a great big GLEANINGS family who are all trying to help each other. The question, "What business shall we connect with apiarian management?" is a prolific one, and has had much interesting discussion in your pages.

I entered the GLEANINGS family in 1887, with 30 colonies; and however fascinating be the occupation, I need not even hint to any of those who record their honey gains in tons, how very essential a thing it is to us who would like to be bee men, to have a side show occupation until the big honey business would materialize.

In 1888 I moved my apiary from Indianapolis to North Vernon, Jennings Co., and to this city in 1889. Through these years and changes our honey product has slightly exceeded a liberal supply on my own table. My great lack of success has come from the ravages of that loathsome disease, foul brood. My stocks have decreased to 14 colonies, "spring count." I have just made a purchase of a fine old farm. Yesterday my little "wicked" busy bees bid good-by to city life, and to-day I liberated them under the spreading branches of an apple-orchard full of bloom; and this brings me to the thought which prompted this article. GLEANINGS is authority for the quality of honey vinegar. We are here surrounded by a prolific, never-failing fruit-crop. Fruit makes cider; cider makes vinegar; cider vinegar, known to be such, always commands ready sale at the best quotations. I put the question, "Will cider and honey vinegar combine?" Both are known to be in quality par excellent. Neither would be an adulteration of the other. The brand would be improved—honey-cider vinegar. I am told that honey enters largely into the manufacture of the plug from the wickedest weed in the world. Of course, the name of honey associated with the vile stuff helps the sale of it to those who indulge in such nastiness. Would it not be a humper in aiding the sale of pure vinegar? Can any one tell?

JOHN CADWALLADER.

Madison, Ind., Apr. 26.

Friend C., I am happy to tell you that we have been in the habit of putting our refuse honey into our cider vinegar for some time, and it improves it amazingly—sometimes to the extent of making it so sharp that nobody can use the vinegar without first diluting it. When they put it on the lettuce in our dining-room, I have remonstrated several times because they did not dilute it more. It would fairly take the skin off

your lips and tongue. Perhaps a better way would be to put water with the honey before it is added to the vinegar, to avoid having it too strong.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A PASTE FOR STICKING HONEY-LABELS ON TIN.

In GLEANINGS for April 15 I noticed an inquiry for a paste to stick labels on tin. I find the following *very* satisfactory: Flour, 1 lb.; gum arabic, 2½ oz.; sugar lead, powdered, 1½ oz.; alum, 1½ oz.; water, 2 qts. The gum, sugar lead, and alum, are dissolved in the water, then proceed as when making ordinary flour paste. Scratching the tin with sandpaper, or washing with diluted muriatic acid, is also helpful. One of our amateur photographers likes this paste very much. J. F. BARTON.

Chicago, Ill., April 21, 1890.

And here are a couple more lette s on the same subject:

You inquire how to make labels stick to tin pails. I have put on a great many this winter. The best way I find is to use common flour paste, well cooked, then rub the label hard with a dry cloth after it is on the pail; rub it down smooth, let it dry, and it will stay as long as the pail lasts, unless you wash it off. Mucilage will not stick well.

Jackson, Mich., Apr. 4. W. D. SOPER.

To make labels stick to new tin with ordinary paste, rub a sliced onion over the tin.

Evansville, Ind., Apr. 17. L. A. WILKES.

SPRAYING OF FRUIT-TREES AND KILLING OF BEES.

I write you for information in regard to the spraying of fruit-trees with poison. There are persons, malicious and ignorant, who will not yield to any proofs, but persist in spraying their trees while the blossoms are on, and poisoning the bees. One man in this neighborhood had his bees ruined for this season, and mine are dying off daily from the effects of poison. What I wish to ask is, whether there is any remedy through the law by which such persons can be made to quit it.

Millbury, O., May 2. GEO. W. CHAPMAN.

Friend C., if your neighbors poison your bees they render themselves liable, in the same way they would if they poisoned your chickens or larger animals; and if it can be shown that there is no necessity for spraying the trees while they are in blossom, we shall have a pretty clear case against them. The professors in our agricultural colleges and experiment stations will back us up in the matter, and perhaps the Bee-keepers' Union may decide to take hold of it, if it comes to litigation. I would, however, have a friendly talk with your neighbors in regard to it, and show them what Prof. Cook has written on the subject.

DECOY HIVES NOT ALLOWED BY LAW IN CONNECTICUT.

There is a law in this State that makes the setting-out of a bee-hive in the woods, or anywhere else, for the purpose of catching runaway bees, a misdemeanor, punishable by fine or imprisonment. Now, what we should like to know is, can it possibly work any injury to my neighbor who keeps bees? Does it in any way entice them to abscond? We claim not. But we claim, rather, it is a humane act; for why is it not better for the little fellows to have a decent place to set up housekeeping in than to have them waste their time and strength in cleaning out some old hollow tree? Now, I regard my neighbor's rights as sacred as my own, and more so. What we should like to know is, whether it can work him any harm to set out hives as I have stated. I hope you will not cast this aside without a reply. I think the law a foolish one, conceived in spite.

Middlebury, Conn., April 28. R. B. WHEATON.

Friend W., I was aware that such a law had been passed; but I pronounced it at the outset a foolish, unnecessary law, and I objected to it at the time it was brought up at one of our conventions. The enactment of such laws, where no law is needed, is one great reason why we have so many laws that are a dead letter. If I wanted to set out decoy hives in the woods or anywhere else, I would do so, and no one, surely, would make any complaint unless it would be some foolish fellow who has got cranky on the subject.

FOUR-BANDED ITALIAN BEES.

I send a sample of my "so called four banded bees." Will you please be kind enough to examine them carefully and tell the readers of GLEANINGS whether or not they have four or five yellow bands?

Frenchville, W. Va., Apr. 30. L. L. HEARN.

Friend H., the Italian bees you send us in a Peet cage, mentioned above, when placed on a window, show distinctly four yellow bands. The fourth band is not the downy fuzz so often called a yellow band, but the horny scale of the body itself is, a greater part of it, yellow, just like the second and third bands in ordinary Italians. I do not know that I have ever before seen bees so distinctly marked with this yellow band. Some of them may also show the fifth band, but it is not as clear and unmistakable as the fourth. Perhaps I should say to our readers that I do not consider these extra yellow bands as particular evidence of their purity. It is doubtless the result of careful breeding and careful selection, having yellow bands constantly in view. While these yellow bands distinguish them more plainly than common Italians, from common bees, it does not necessarily follow that they are better honey-gatherers than ordinary Italians. The bees are of a good size, very handsome, and quite docile. I let them out of the cage on the window, so as to see the band more clearly, and put them back, taking them by the wings by my fingers, but none of them offered to sting. We should be glad to have friend H. tell us where he got the stock, and how long he has been getting the above result.

IN FAVOR OF OPEN-SIDE SECTIONS.

Seeing, as I do, in GLEANINGS, occasional and mostly uncomplimentary allusions to open-side sections, I feel called upon to say a word in their favor. During the season of 1888 I produced a little over 6000 lbs. of honey in open-side sections, 4¼x 4¼, 7 to the foot, and I was very well pleased with them. They were used in a case that clamped

them up firmly together, so that they were propolized only on top and bottom. This propolis was scraped off before removing the sections from the case. I think the trouble in using them has been that the case was not adapted to them. They must be clamped up tight together, so that no propolis can be got in between them. A T super will not do. I am not very much interested in this comb-honey business at present, as about a year ago I decided to run my bees—300 colonies—for extracted honey, yet I dislike very much to see a good thing, like the open-side section, defamed by those who have not given it a fair trial. T. P. ANDREWS.

Farina, Ill., May 5, 1890.

BAD BOYS, AND HOW THEY WERE SERVED.

I went into winter quarters with 119 hives; lost 20, and the boys upset six and rolled some down the hill, and killed three colonies for me. I sold nine others, leaving 87 colonies to commence with this spring, all in good shape, as they commenced breeding early in February and March, and are all getting strong now. The three boys that upset six of my hives and destroyed three, belonged to three different families; so I made their parents pay for the bees $10 for each colony destroyed, $30 in all, and settled it without going to court.

Norristown, Pa., Apr. 19. J. W. SWARTLEY.

Friend S., I think you did exactly right. Where boys tip over bee-hives, or destroy valuable colonies for the small amount of honey they obtain, I think the good of the boys demands they should be made to pay roundly for it.

A LOSS OF 110 OUT OF 161 PUT INTO WINTER QUARTERS, WITH THE DIFFERENCE GREATLY IN FAVOR OF CHAFF HIVES.

I have been watching to see the reports of the losses of bees this spring, but I have seen no report. I have lost 110 out of 161. I put 117 into the cellar. I left 44 outdoors in chaff hives, two of which died this spring. Most of those that were in the cellar were very weak. I set them out twice. There was a good deal of honey-dew last fall. It is cold and backward for bees. There have been big losses through this section. Some have lost more than I have. JAMES MARKLE.

New Salem, N. Y., May 1, 1890.

Your great loss in the cellar, and comparatively small loss in chaff hives, speaks well for the outdoor method, though the past open winter was much more favorable for outdoor wintering. We rather doubt whether the food was the whole source of loss in the cellar. Did your hives have plenty of bottom ventilation, and no top ventilation? Ventilation from an ordinary entrance in cellar is not enough. Another thing: Was your cellar darkened and perfectly dry, and did it maintain a comparatively even temperature? Let us hear from you again. We want to know more about your loss.

THE HOFFMAN FRAME.

Mr. Root:—The wide and thick top-bar is the only one that ought to be used in bee-hives. We have used such for six or seven years, and many near us are falling into line in regard to them. We did not like the brace-combs built above frames, nor the use of burlaps over them, neither the use of honey-boards. The frame we use is a trifle different from the Hoffman-Langstroth, but only in the width and thickness of the top-bar. We call them the Hoffman-Langstroth. The use of wide and thick top-bars allows us to have no use for them, for we can use a plain board that comes off clean. Honey-boards, burlaps, etc., are too much machinery for us. You can do no better than the Hoffman frame, made as we make them. F. A. SALISBURY.

Syracuse, N. Y., Jan. 31, 1890.

You will observe that the frame he describes is quite similar to the modification we spoke of on page 330 of last issue. We are sure that bee-keepers would like to dispense with quilts, honey-boards, burr-combs, and "all sich," and we hope the above frame will enable us to do it.

HONEY-MOONS.

We extract the following from the *American Bee Journal*, as many, like ourselves, may not before have known the origin of the term:

Honey-moon, it is said, is a term of Teutonic origin, and derived from a luxurious drink prepared with honey by the ancients. It was the custom to drink of diluted honey for thirty days, or a moon's age, after a wedding feast. It is good to "keep sweet" for a month after marriage; but it is better when that "sweetness" extends throughout not only the months, but the long years of wedded life.

We heartily indorse friend Newman's closing sentence.

BEES CLUSTERING ON THE EAST SIDE OF THE HIVE.

In examining my bees last week I noticed that in all the four hives the bees were clustered on the *east* side of the hive. Is this usual? I winter out of doors on 8 S. frames, stores on each side of the cluster, 4 frames with the bees in center, 2 frames of honey on each side of cluster. J. F. BARTON.

Chicago, Ill., April 21, 1890.

Friend B., if what you say is true it is because the morning sun has so warmed up your hives as to call the bees over to that side. I have seen them cluster on the south side of a hive in preference to the north, and for a similar reason.

DOUBLE-TOP-BAR FRAMES.

On page 204 is illustrated and described a double-top-bar frame; and in our answer we refer to a sample which we held in our hand, and which, by propolis accumulations, we judged had been used for some time. At the time we did not know from whom it came. The letter, with reference to it, was attached to an order; and as it is now separated we take pleasure in presenting it to our readers. Friend Penton was among the very first to use the double top-bar—perhaps *the* first.

Friend Root:—I send you by mail one of my thick-topped frames, to let you see that there is in practical operation a deep top-bar combining all the advantages called for by the fraternity, unless it be in the width. I have adopted this for the purpose of making more distance between the brood and the upper frames, or sections, the prevention of brace-combs, and the necessity of a honey-board. The queen will never trouble the upper story. The bees will not pile up the bee-space, and, summer or winter, packed or unpacked, the bees have free access to all the combs in the hive. I am aware that, if the top-bars were all of one piece, and cut out

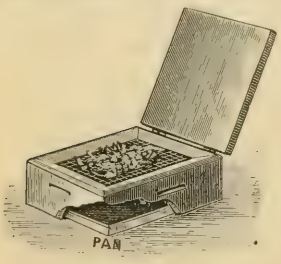
with a wabble saw, they would be stronger and better, but I have no machinery for doing it. I am sure you could sell any amount of them if you made them. CHAS. PENTON.

E. Aurora, N. Y., Feb. 2.

Your suggestion is no doubt valuable. I hold in my hand a top-bar made as you suggest. Instead of using a wabble-saw we simply use one of our thick grooving saws. A slot is cut so as to leave sufficient wood at each end, and also a solid piece in the middle. Yours will be the cheapest way to make a double top-bar; and it will, besides, be considerably stiffer than one made of two pieces of wood.

A LETTER FROM A LITTLE GIRL; PAPA'S SOLAR WAX-EXTRACTOR.

My papa had over 70 hives of bees two years ago. I will try to tell you how we moved them. He filled the horse-cart nearly half full of fine dirt, so they would not be jolted, then placed in as many as the cart would conveniently hold, brought them home, and removed all the others the same way until all the bees had arrived safely at our new home Papa does not "squeeze" the cappings, as some do, but he has an extractor made of a Simplicity hive with a flat cover put on, on hinges, then in the bottom there is a square tin pan 6 in. deep, which catches the wax and honey; above that there is a wire-net cover on which the wax is placed. The good goes down in the pan beneath, while the dead bees and bad wax stay on the wire net, and over that there is a glass cover which throws the heat of the sun down on the wax, and melts it very rapidly. I here draw one as near like it as possible. Papa gives me half of the wax for watching it, and putting and taking out wax when it is needed. Once a high tide came half way up our front yard, and drowned nearly half of our bees.



Church Creek, Md. ELIZA BUSICK, age 12.

MOVING BEES; BAD WORK WITH.

I must give you the benefit of my experience in bee culture. It was many years ago, when I was but a young lad, when a man who kept a number of hives was a laborer for my father. He would be talking everlastingly about how all his bees were thriving. I purchased one hive from him, and left it with his own for two or three years, when the number was increased to six or seven, and may be eight hives. I made as many stools in my father's kitchen garden to place the hives upon them. I inquired of the bee-keeper the best way to remove them. He said, "The road is good, as smooth as a room floor. Bring a large-bottomed cart and towels, and we will fix a towel about each hive, and place them all in the cart; and by driving carefully you will get them home nicely." Home was three miles off. By the time we had gone but half a mile, the honey was dripping through the cart on the road; but as it was useless to stop, we continued our journey. Upon lifting them out of the cart to place them on the previously prepared stools, the works were detached from the hives (made of straw); only two or three could be set on the stools; the rest were all broken-up wax, honey, and bees, all thoroughly mixed up. After getting the household bedded, I placed two washing-tubs before the kitchen fire, took off my coat, rolled up my sleeves (I had been, previous to that, stung so much that I had become heedless of more), took up a handful of the mixture, and picked with my fingers bee after bee into the fire. This was my occupation all the night, and I finished it only when the sun was rising. You will doubtless laugh, but I tell you it was not a laughing job to me at the time, though I have laughed over the matter many a time since.

Washington, D. C., April 10. J. S.

But, friend S., what in the world did you sit up all night for, picking out bees and throwing them into the fire? Did the mashed-up honey you had, pay you for the trouble? It was the towels over the bottom of the hive, shutting off the air, that made the trouble. In removing bees, you want wire cloth. Nothing else is safe, especially when the weather is warm.

WHAT MADE THE BEES SWARM OUT?

My bees have been out for a week, and I have had 7 swarms leave their hive and go in with other swarms. They leave from 20 to 50 lbs. in a hive.

Hammond, Wis., Apr. 4. A. E. BRADFORD.

The swarming out you mention comes under the head of "Absconding in Early Spring," in the first chapter of the A B C book. Bees are more apt to do this when wintered in cellars or special repositories. Yours must have gotten a kind of absconding mania, especially if they had plenty of stores, as you state it.

FALL HONEY, AND BEES IN GOOD CONDITION.

Bees did not do much last year till about September 1, when the fall flowers opened and the bees went at them in earnest, filling their hives with the best fall honey I ever saw. I had several swarms in September, which built their combs and stored honey enough to carry them through the winter—something never known in this country. I have 50 colonies of bees in good condition for spring work.

Mart, N. C., March 17. SUBSCRIBER.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 160.—*A young man having just graduated from college, and living in the vicinity of Central Illinois, has had some experience in managing out-apiaries for a bee keeper. He desires to keep some two or three apiaries, and teach school during the odd months. He wants to know how much time he will probably have for teaching school, providing he does all the work himself, with the assistance of a horse and wagon, and yet give the bees all the necessary attention.*

I should think about four months.

Cuba. O. O. POPPLETON.

Excepting a few days, he will have from September 1st to April 1st.

Wisconsin. S. E. GEO. GRIMM.

If he purchases all supplies, six months, from October 1st to April 1st.

Michigan. C. A. J. COOK.

He would "probably" know if he should follow out his proposed plan.
Ohio. N. W. A. B. MASON.

I should say six months, if his apiaries do not exceed 100 to the apiary.
California. S. W. R. WILKIN.

Not a day—at least I suspect that from my own experience, unless the apiaries are very small.
Illinois. N. C. C. MILLER.

If by the above is meant during the honey season, none. If the entire year is included, probably from five to six months.
Illinois. MRS. L. HARRISON.

If he makes his own supplies, I should say, "Not any." If he buys his supplies, then perhaps three months during winter.
New York. C. G. M. DOOLITTLE.

If he keeps two or three apiaries, and gives them the necessary attention, it will take more of his time than he will be able to give to a school.
Louisiana. E. C. P. L. VIALLON.

If he works with his bees every Saturday he will be able to care for two or three apiaries during the school months—we mean from September till May.
Illinois. N. W. DADANT & SON.

In a year or two he will probably have twelve months for teaching. With the amount of work he lays out he can do neither himself, school, nor bees, justice, and one or all will fail.
New York. C. P. H. ELWOOD.

If this young man is full of energy I should say he might devote three or four months in winter to teaching at first. He can then decide the question for himself.
Ohio. N. W. H. R. BOARDMAN.

If he has steel nerves and is iron-clad, and requires no rest, he may teach from December till March; but if he is of the same material as other men, he will have no time to teach and do justice to his bees.
Vermont. N. W. A. E. MANUM.

If he keeps "two or three" out-apiaries of a proper size, doing all the work himself and doing it properly, he will probably not be able to teach school more than nine months in the year. Most men would not have any time for school-teaching.
Illinois. N. C. J. A. GREEN.

I think the young man will find that the schools will claim to set the time for him. He will have to push things to get ready to begin the fall term; but I guess he can manage it if he uses his Saturdays to finish up in. The winter term will come all right. The spring term he can hardly take, unless he can find a school accommodating enough to have an unusually short spring term. Thus six or seven months would be his outside lines.
Ohio. N. W. E. E. HASTY.

He can teach during the winter months. Begin, say, November 1st, and teach four months. But if he keeps two or three apiaries of from 60 to 80 colonies, spring count, he can not do all the work himself during the honey season; and then when he gets his third apiary to going in good shape he will find that his school days are over, for there is a great deal of work that can be done in the winter—getting things ready for next year, and selling off his honey, etc.
Wisconsin. S. W. E. FRANCE.

I don't think I would teach any, unless I had to. He might, perhaps, be able to teach the winter months if he buys his hives and fixtures, but it would be well for him to get thoroughly rested during the winter; for if he runs three yards with 100 colonies each, he will have to get around pretty spry during the bee-season if he gives the bees all necessary attention.
Wisconsin. S. W. S. I. FREEBORN.

Let us see. Three apiaries, 100 colonies each, 300. If run for comb honey there will be somewhere near 20,000 sections to prepare, besides hives and many other things. We should therefore say, that, doing all this work himself, there would be but little time for "swinging the birch." If, however, the bees are run for extracted honey, and after each hive has a complement of extra combs and no increase allowed, then from November 1st until April he could devote his time to the profession of pedagogics.
New York. E. RAMBLER.

Now please excuse me for the following reply, because I feel sure you want the truth as I see it. In the first place, this young man's having graduated from college is no sign that he is as well prepared to manage your bees as some young man who has not been to college. In the next place, he does not look upon bee-keeping as I do, if he proposes to manage two or three apiaries and teach school during the "odd months." If he does the work as it should be done, he will have no "odd months" at all, if each apiary contains a sufficient number of bees to be worthy of the name of apiary. In taking bees on shares there is an enormous profit to him who takes them, and a loss to the one who owns them if they are worked on the "kick and a brush" plan. Whoever works apiaries, whether he owns them or not, should do the work well and carefully, seeing to every detail, and should have all of his work done ahead of time. If you aim to keep from one to two weeks ahead of your bees you will probably not get behind at any time; but if you aim to keep just even with them you will probably get a week or two behind just at the time when the greatest loss from such being behind comes in. I want the hustling fellow, with natural ability, and I don't suppose it would hurt him if he had graduated at a college, provided his metal had not been all molded and worked in that college until the temper is all worked out of it.
Michigan. S. W. JAMES HEDDON.

I am much inclined to agree with the friends who think that he should not teach school at all, or else he should not keep bees at all (of course, there are men who can carry on two lines of business at once)—that is, if he wishes to attain a great degree of excellence in either calling; and it seems to me, too, that this young man is starting out pretty large. If I understand him, he has not had experience in handling even *one* apiary of his own. The man who proposes to keep two or three out-apiaries, even after he has had experience, will find enough on his hands to occupy all his brains and energies, even in winter time.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth $1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

MISTAKEN IN STORES.

J. W.—The boy was probably mistaken as to the amount of stores the bees had. They should have had twenty pounds by weight. It is well for beginners to weigh the combs. If the aggregate will make twenty pounds, all right. If not, feed until they have enough.

SHUTTING BEES IN CHAFF HIVES DURING WINTER.

C. P.—Do not shut bees up, packed in chaff, outdoors. Give them a full entrance, and let them fly when they will. You may kill them if you keep them shut up. Bees that die in the snow, probably are of not much use to the colony. They are diseased, and hence fly out.

ARTIFICIAL FORAGE.

J. H. I.—It will not pay you, if you are a beginner, to plant for bee-forage. But very little is gathered, usually, from artificial forage. Natural sources are usually depended upon. Alsike clover, buckwheat, and rape, are usually safe to sow. See "Artificial Pasturage," in the A B C book; also "Alsike," "Buckwheat."

MARKET VALUE OF DARK HONEY.

Miss H.—Dark-colored honey never sells for as much as light-colored. As a general thing it will not bring much more than half; 25 cents at retail certainly would be very high for dark honey, especially if the flavor were of an inferior quality also. The best way to dispose of candied comb honey is to feed it to the bees.

ABOUT WHEN A SWARM MAY BE XPECTED.

H. G.—You can not tell exactly when bees will swarm; but from conditions in the hive, you can say they will swarm in a day or so *perhaps*. The conditions are, an overcrowded hive, large amount of brood, several queen-cells which will hatch in 24 or 48 hours, and a good honey-flow. See "Swarming" in the A B C book.

PROXIMITY TO THE HIGHWAY, FOR BEES.

C. W. Y.—The outskirts of the apiary should not be closer than 100 feet to the highway, and on account of the children it would be better to have it that distance from the house. With a high board fence, or a hedge six to eight feet high, the apiary may reach clear up to the highway, and very little trouble, if any, will be experienced by passers-by.

SENSE OF HEARING NECESSARY OR NOT FOR A BEE-KEEPER.

A. T. G.—Impaired hearing would have very little to do with your failure or success as a bee-keeper. The only difference, and that would be slight, would be that you would sometimes be unaware of the issue of a swarm, from your inability to hear the swarming-note; but by keeping on the watch during swarming time, as every bee-keeper should, you would lose few swarms. Again, you might miss some of the pleasures of a bee-convention. One of the best bee-keepers in the State of Ohio is hard of hearing.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

A MINISTER WHO USES TOBACCO.

I enjoy Our Homes very much. It is all written in such a practical way, just like the experience of so many others, that it is of great help to resist temptations. I have had a temptation all my life—that of smoking. Although, through the careful training of parents, I never used tobacco in any form, yet there is still a desire for it. Now, while I believe we should have a great deal of charity for the failings of others, when a servant of God who sets himself up to teach others the truth and *purity* of the word, one can hardly tolerate the use of tobacco. A minister of this class called at our house, and during the time he was offering up prayer and thanksgiving to God, he was compelled to stop three times to expectorate the vile quid. Now, this seems pretty hard; but still it has its influence on others by disgusting them. But, friend Root, what ought one to say to such a person? God hasten the day when tobacco will become extinct.

Linn, Kansas. J. T. VAN PETTEN.

Friend V., I can not tell you exactly what you ought to say to a minister who persists in the use of tobacco; but I would say, in general terms, try to say that which will do the most good and not do him harm. Pray for him, and pray for yourself before you say any thing, and ask the Holy Spirit to help you to act and speak wisely. With such a preparation before you, you will be very unlikely to do harm. But even if he does not stop forthwith, give him to understand that you consider him a brother still. And let us remember that it is everybody's privilege to do as he sees fit or thinks proper, in all these matters where there are differences of opinion. In returning from a convention in Michigan I rode several hours in the night with a good brother who is a professor of religion, but who acknowledged to me that he used tobacco, and either could not or had not given it up. His son in the seat with him listened to all our talk. I told him I should pray for him, and told him that it would be good news to me at any time to hear that he had, with God's help, broken away from the bondage. In a few months the son wrote to me that his father broke right square off shortly after our talk. I am now waiting anxiously to hear that the son has come out before men and confessed Christ Jesus. May be when he reads this he will gain courage.

THE FUN IN QUITTING TOBACCO.

I have used tobacco 20 years. I have quit using it. I have not used any for over three years. I now propose to handle bees for 20 years, and see which is the most profitable for me to handle—bees or tobacco. If you have never used tobacco you don't know the fun there is in quitting it.

Athens, Pa. JULIUS WHITE.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

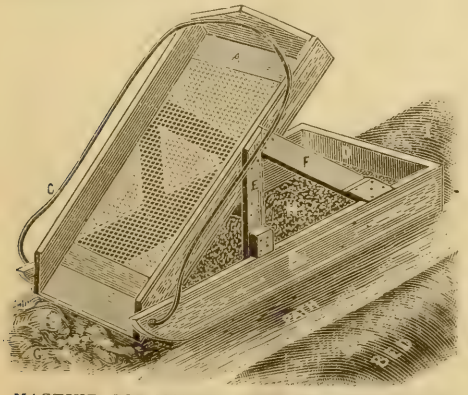
JAMES F. W. JOHNSTON.

HOW TO MAKE PLANT-BEDS ON THE WORST KIND OF GROUND.

In our last issue I promised to tell you how to make plant-beds on the worst kind of ground. Keep on just as I have directed before. Now, no matter how much underdraining you have done, you want overdrains, or surface-drains. J. M. Smith had them in his beautiful sandy soil at Green Bay, and I am sure we want them everywhere. For the plant business I would have these surface-drains 3½ feet apart, from center to center. These surface-drains also form paths to walk in as well as to carry off the surplus water. We make them with two horses by means of Darnell's furrower and marker. Our machine leaves the ground something like the diagram below.

HOW TO MAKE YOUR PLANT-BEDS.

A A are paths, and B B the beds. The machine leaves the ground as we have shown it on each side of C. D D shows the fine soil scooped out of the bottom C. This fine soil is leveled down and brought into shape by a machine of my own invention, illustrated below.



MACHINE FOR MAKING BEDS FOR VEGETABLE-PLANTS, FLOWERS, ETC.

The runners of this sled arrangement are to go in the paths A, A, in the diagram above. The sieve or screen is just the kind they use for screening sand, gravel, etc. It is set at such an incline that, when the soil of the bed is thrown on top of the screen, the fine dirt and fine manure will go down through, while the rough part slides down to the ground at G. Here we have small stones, clumps of dirt, chunks of manure, weeds, sticks, trash, etc. The meshes of this screen are ¼ inch; that is, there is a ¼-inch space between the wires. The operator scoops out the soil of the bed, and throws two or three shovelfuls on the screen A. Then with his foot and shovel he levels off the coarse part at G, takes hold of the bail C, and pulls it along, say a foot, then shovels some more dirt, and pulls it along, and so on. The result is, that the surface of the bed is soft fine soil down several inches, and it is finer and smoother than any soil you ever got by raking. If your ground is in very good order, you may have four or five inches of this beautifully fined-up soil, most thoroughly mixed and mingled with all the manure that has been put into it, and the big lumps and trash are all down beneath. The back end-board, D, as the machine is drawn along, smooths the surface so it should be almost or quite ready for the plants. Our engraver has left the surface of the beds rounding, where they should have been flat. The *paths*, or surface-drains, are rounding, or hollow, while the beds are perfectly flat, as shown in the diagram. This apparatus not only does the work very much faster than it can be done with the garden-rake, but it leaves the soil in a much better condition for the plants. I have been astonished at the enormous productiveness of these plant-beds when the weather has been favorable. A man, or even a boy who has had a little practice, will go over the ground very rapidly. When the paths get weedy, get your marker and draw over it with a team, and they will be scraped out most beautifully.

For planting cabbage, celery, and every thing of this description, we take a roll of poultry-netting, the exact width of the top of the bed. This netting is ordinarily of 2-inch mesh. For the celery, we have used 1½-inch mesh. Unroll it, and then roll it up the other way, so that, when laid on the ground, it will lie flat. Make it stay by means of some bricks laid on it, wherever it bulges up. Now give the boys an ordinary cheap wooden sled that will just span the beds. When one of the boys is working, he can sit on the sled and put the plants between his feet. We ordinarily, however, have two boys work together. As the plants are put in, their sled, or seat, is pulled along. If the weather is hot and dry, a barrel of water and watering-can should be right beside them. While I write, at least a dozen schoolboys are busy putting out celery and cabbage (a plant in each opening), for we had a nice shower last night.

Now, before you say it is too much fuss and trouble, and will not pay, just remember what I told you before; and I feel sure that it will prove true in almost any locality. When you get your piece of ground up to its highest notch of fertility, the prod-

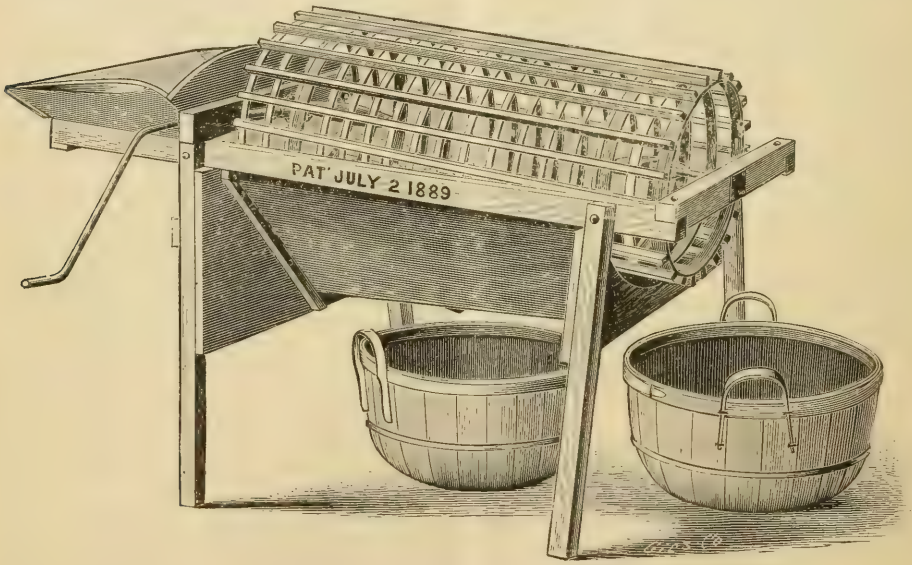
uct of a square yard of your beds in *four* or *six weeks'* time *may* bring you a dollar bill. But even if it brings you only 25 cts., just figure up what a quarter of an acre will amount to. This ground, worked on the high-pressure principle, using guano and liquid fertilizers, should be bearing crops of some kind from the first of April to the first of October; and with the aid of glass to keep off the frost, it can be growing a crop every month in the year. You may take exception to some of these statements; but if you do, I shall tell you that you *never saw* a square yard of ground doing what it is *capable* of doing; in other words, you have no comprehension of *God's gifts* to the diligent *lover* and *searcher* in this direction.

A MACHINE FOR SORTING POTATOES.

For two or three years past, we have been sorting our potatoes with a sieve covered with poultry-netting of the right size of mesh. The way we used this sieve was to place four bushel boxes tight up together. The sieve was laid on top of these boxes, and about a bushel of potatoes poured in. Then a boy at each side would shake them until the small ones had passed through. The large ones were then poured into two more potato-boxes, placed side by side. This was a good deal faster than sorting them by hand, and there was not any guesswork about it. All that went through the meshes were sold at a low price. I soon made up my mind that a machine was needed to do it faster and with less labor. But the more I thought of it, the better I became satisfied that some competent person should take the matter in hand, and, by means of a series of experiments, work out just what was needed. I then had in mind a sieve suspended so as to oscillate, letting the potatoes roll off the lower end. With a view of finding out whether any such machine had been made, I made inquiry through the *Rural New-Yorker*. That inquiry brings to light the machine we illustrate below.

You see, these friends have gone ahead of me in making it in the form of a revolving cylinder. Here is what they say about it:

You will notice at once that it's "just the thing;" "wonder some one hasn't thought of it before." Well, here it is now, and at a price within the reach of all. With this machine, which weighs less than 100 lbs., two men and a boy can sort and put into the wagon from 80 to 100 bushels an hour. It can be operated by one person, if necessary. As you see, the potatoes pass from the hopper into the cylinder, which should be turned very slowly, by a lazy boy; and if he has got the "spring fever," so much the better. Have him pick out the decayed or scabby potatoes as they pass through the hopper, otherwise he will want to go to sleep. If the potatoes need sprouting, raise the lower end of the machine, or turn the cylinder half way over and then back, or both. The small potatoes, dirt, straw, etc., will fall under the sorter into the basket, while the merchantable ones will be delivered into baskets as shown, or they may be run on an incline into the cellar. To sort seed potatoes from the small ones, just wind the cylinder with binder twine the proper mesh, and the result will surprise you.



THE HOOVER POTATO-SORTER, MADE BY HOOVER & PROUT, AVERY, ERIE CO., O.

We have been using one of the above machines for two or three months past. I had not thought of having a sprouting-machine to take the sprouts off; but this machine actually does it pretty fairly. To keep the potatoes from flying around the room we have tacked on a couple of sideboards, reaching up about as high as the top of the reel; but we greatly prefer to have the bushel boxes instead of the baskets, as shown in the cut. The boxes can be placed under the machine, pushed up so tight together that no potatoes, dirt, or rubbish of any kind, can get out on the floor. The price of the machine is $15.00.

SOME HINTS ON RAISING ASPARAGUS.

Friend Root:—As you are very fond of gardening I thought I would write you a treatise on asparagus, as it is but little cultivated, and one of the best of vegetables, coming in early when there is but

little else in the vegetable line to be had. The seed can be obtained from the leading seedsmen, and planted in a great part of the U. S. in May. In the fall and early winter, the seeds, when mature, can be gathered, and they are easily cleaned by putting them into a vessel of water and rubbing them with the hands, when the seeds will settle to the bottom, and the hulls, etc., will come to the top, and can be dipped or drained off, leaving the seed nice and clean. Plant the seeds in April or May, according to climate, in rich mellow earth, about an inch deep, with the seeds two or three inches apart in the drill. Keep them well cultivated for one or two years (two years give the best roots), when they are to be reset in very rich land (unusually well enriched), some time before resetting; the roots are to be put out in trenches somewhat below the general level, and a slight ridge, or bed, is to be made over the roots, and these beds, or ridges, must be kept free from weeds and grass. The plants ought not to be cut or used the first year, or the same year that they are reset. Fertilize annually, and the planting will last for a lifetime, or a good many of them, doubtless. They ought to be reset in the trenches or rows at least one yard apart. A tablespoonful of seed will raise plants enough for a good-sized family. It is a salt-water plant by nature, hence light applications of salt promote the growth of the plants, and also help to keep down weeds and grass. R. JONES.

Design, Va., April 28, 1890.

Thank you, friend J. Our experience is rather limited in raising asparagus, but we have found this true: There has never been a surplus yet in our market. Last season we cut continuously from the first of May till the first of July, and some even later; but the plants seemed just as thrifty this year as ever. Two years ago we ran our little seed-drill twice the length of the field, but sowed seed pretty thickly, for the plants in some places were less than an inch apart. Since then we have done nothing but run a cultivator each side of the row, and hoed them out two or three times; and this spring, from those two rows, we have sold certainly $25.00 worth of roots. It is almost the only vegetable with which we have never yet succeeded in overstocking the market.

OUR HOMES.

But the water that I shall give him shall be a well of water springing up into everlasting life.—JOHN 4: 14.

MOST of you know how much I love to see springs of water. Hunting for springs has been one of the hobbies of my busy life, especially if the springs are perpetual, bubbling forth their treasures winter and summer, year in and year out. Where water is plentiful, we think little of its value. I was greatly pleased in California, and along the desert wastes, to see how much value was set upon a living spring. Even if the water that is poured forth is but small in quantity, if the little stream keeps running winter and summer, in the course of time it amounts to a great deal; and there is something pleasant and fascinating to almost every one in seeing the water spring forth, and keep running unceasingly. My friends laugh at me because I go up on the hill so often to see the windmill raise its treasures of water. When I am tired of reading your letters, I look out of the window just as I am looking out of it now while I dictate this, and see the beautiful piece of machinery raise its burden of pure water from the depths below. Although it has pumped more than 500 barrels a day, there has never been any indication of the well giving out, and the water has already acquired the reputation of being the best drinking-water in the town.

For a week back, our wood-working factory has been humming and buzzing through the night time as well as through the day. As we started up suddenly, to try to fill your orders by working both day and night, we were obliged for a time to use coal-oil lamps to light the workmen. The question was asked whether I dared to take the risk of getting our whole establishment burned up, as was that of friend Lewis. I replied that I had very little fear while the sprinklers covered every foot of space right over the work, and so long as the windmill kept the great tank full of water; for such an abundant supply of water, springing forth at the first start of the fire, must necessarily drown it out before it could make any headway. Am I getting away from my text? I hope not, dear friends, for I have been thinking that this perpetual spring of water is to our business like the follower of Christ in any community where there is danger of the fires of sin drowning out all that is good. The woman told Jesus that the well was deep. She seemed to think the waters of that well that had quenched the thirst of Jacob and his children, and their generations all along down, was one of the great essentials in their time, and so it was. But the Savior next told her of the living water; and he said it should be in the heart of the possessor like these *living springs*, and that it should refresh and invigorate all around by its unceasing supplies that should give everlasting life. Dear friends, these words are more true than perhaps you and I shall ever know. As we go on and persevere in the Christian life, we shall know more and more of the value of these waters, and their power to refresh, awaken hope, gladden, and give joy, until that everlasting life beyond shall be the end.

We are greatly inclined to forget this promise. This fountain will be neglected and choked with worldliness if we do not look out. Then, perhaps, we shall look back to the time of our conversion, and lament that the pure waters are not *now* springing forth as they did then. But it need not be so, dear brother and sister. It may be, and should be, as in the text, a well of water springing forth and giving hope and joy and everlasting life to all around.

Through all my religious experience I have been in the habit of expecting, day by day, *fresh* experiences welling forth from my heart—something new, joyous, and refreshing, coming, as it were, of *itself*—burst-

ing forth without any agency of my own, and giving me something fresh, bright, and new to give to my friends all around, to cheer and encourage them, and to revive and refresh their hopes and their faith. This thing of which I have been speaking has been one of the joys of my life, and I have been led to expect it. But let me tell you that this fountain is easily dimmed and choked up, if I do not constantly beware of the tempter. The experience I spoke of a few months ago, where Satan for a time bid fair to get a foothold, for a time checked or kept back these experiences. I knew it would be so; and when he was trying to make a barter for something he had to offer, over and against everlasting life, one of the things that kept me back was, that I knew I should soon lose these bright experiences of that living water, coming forth, oftentimes, when I least expected it. "Ye can not serve both God and mammon." If I listened to *him*, I knew I should have to abandon all at once. And yet I did not get away from him easily. He followed me days and nights. He tried first one thing and then another; and even after he seemed to have *abandoned* his undertaking, he would come back now and then. I hardly need tell you that the one who expects to do spiritual work—who expects to be successful in bringing souls to Christ, must be wholly in the service of the Master. There can be no half way about it.

For some time I had been feeling that my gift, if that is the right name for it, in presenting the cause of Christ to my friends and acquaintances, was being drawn gradually from me; but when I turned resolutely about, and prayed earnestly, alone by myself, it has come back again; and within a few days these experiences that I have been telling you of have been coming thick and fast; the shackles and fetters have fallen away, and Satan has no power, and my spiritual vision is undimmed and unclouded, as in the time of my first turning to the Lord. Now, when we feel that this well of water that should *constantly* be in the heart of every Christian seems in danger of drying up, or ceasing to give its accustomed light-heartedness and bright faith, what should we do? And it is this thought that has prompted this paper to-day.

One who would have this living water springing up in his heart must first acknowledge God the creator of all things. A friend of mine who lives in California wrote some time since something like this: Said he, "If I were a praying man I would thank God every day of my life for this beautiful climate, for my growing crops, and pleasant surroundings, etc." I wrote back to him not to wait till he was a praying man, but to commence thanking God right away, and to do it out loud. I tell you, my friends, it is a grand thing, many times, to speak out plain and clear; and it is a grand thing to acknowledge your Creator and the great Judge of all the earth, right out loud. I told this friend, the next time he went out over those wonderful hills after his horses, in the bright morning, to begin speaking loud to the great God above, and to give him thanks and praise. Dear readers, if there are any of you who feel like this one of whom I have just spoken, try the experiment. When off alone by yourself, give praise to God. It will help you in a great many ways. First, you are acknowledging and paying respect and deference to the great Ruler over all; second, you are geting a start in being thankful to somebody. A human being who has no thanks to give to anybody —not even to God the Father—is in a deplorable state of mind. When you get in a way of thanking God, you are very likely to begin to feel like thanking friends and your neighbors when you meet them; and a man who has thanks to give to each one, and who *feels* thankful, is a gainer in a great many ways. He will get more of every thing good by having thankfulness and thanksgiving in his heart. After you have for some time become accustomed to thank God in your fashion, and after your own way, you will be pretty sure to begin to think of texts of Scripture right along in this line. How full are the Psalms of David of such expressions! When David was a shepherd-boy, off in the fields with the sheep, alone by himself, oftentimes with only the stars above him for company, he learned to give thanks. While I dictate I open the Bible at random. The Psalms are pretty nearly in the middle of the book. The first thing that meets my eye is this:

> O Lord, my God, in thee do I put my trust.

And after this comes a prayer:

> Save me from them that persecute me, and deliver me.

On the same page I read:

> O Lord, our Lord, how excellent is thy name in all the earth! who hast set thy glory above the heavens. . . . When I consider thy heavens, the work of thy fingers, the moon and stars, which thou hast ordained, what is man, that thou art mindful of him?

If you have never loved the Bible, when you commence giving thanks to God you will find in it something that harmonizes with your feelings. Perhaps you will remember the prayer that Jesus uttered—"Our Father who art in heaven." And then how naturally comes the next—"Hallowed be thy name!" Why, as you utter these words and feel this sentiment in your heart, you will stand more erect, you will have a broader view of the universe, mankind included, and you will feel more like being honest, good, and true.

When you have learned to love God, and to love these Bible texts that speak of him —when you have learned to pray, even after the humble fashion I have indicated—you will begin to feel Satan striving to draw you away from sacred and holy thoughts. This new joy of yours can not be a well of water springing up into everlasting life until you begin to put aside self. These feelings of gratitude that bring joy and gladness will be dried up, and will soon be quenched if you give way to the temptation to wrong or to defraud your fellow-man.

You may dishonor the Master in a very small matter of business deal; and when you do so, this avenue is choked. It is hard to realize how exceedingly careful we

should be. Let me illustrate by a little incident. I tell it because I wish to show you how to keep the fountain flowing, and not because I wish to praise my own acts.

A man brought us some bees this morning. He made the remark that he got acquainted with A. I. Root a good many years ago. When asked about it he said something as follows:

He said he once had some bees to sell, and he was going to bring them out to us. One of his neighbors remarked that A. I. Root always did exactly as he agrees. He replied:

"I know better. A. I. Root does *not* always do as he agrees."

"How so?" was the reply.

"Why," said he, "he agreed to give me $5.50 per colony for some Italian bees. On the strength of this I drew them out to him; and when he saw them he did not do exactly as he agreed, for he gave me *$6.00* instead of $5.50."

Now, I have forgotten all about the transaction. I can only remember that, at different times, I have enjoyed doing business in just that way; and a great many times I have been glad of a *chance* of doing it, because such things honor the Master, and I always feel happy afterward.

If your money-getting, and getting ahead of your neighbor, are dearer than your love to God, this living fountain must cease for ever; and by and by it becomes a daily task to keep out the weeds of selfishness, and to keep unobstructed the passageways for God's love to come into your heart. Jesus strikes the point where he says, "If any man will follow me, let him deny himself and take up his cross daily, and follow me." You can not have this constant enjoyment otherwise. Lately I have learned particularly to enjoy going to sleep at night with a conscience void of offense toward my fellow-men. I have had some experience in going to sleep with the guilty feeling that I was cherishing, or coveting, something that was not lawful for me to have. Then this spring of joy was choked; my spiritual life was clouded; and when awakened in the morning, my mind would begin to grope for some dreaded remembrance. And, oh what a feeling it is to be obliged to face the recollections of guilt and shame of the day before. Now, let us contrast the joyous feeling of being able to look over the record of the day before, and find it clean. For a few months my first conscious thoughts have been something like this:

"Let me see; is there any thing on my conscience this morning, to mar the new day? Did I cherish evil and iniquity in my heart?" As memory brings up one after another incident, are there any great black spots—any great loads or burdens of sin that I must shoulder to-day—any remorse and regret because I have turned from the Savior and listened to the tempter? Perhaps it takes only a few seconds to review the day before; but, oh what a glad feeling comes when I can say there is nothing to feel bad about! I often feel to say in my heart, "Thank God, thank God, there was nothing when I closed my eyes in sleep last night to make me feel guilty and wretched this morning. I fought the good fight, and by the help of Christ Jesus I came off triumphant." Now, when I do commence in this way I am sure to have those experiences I have told you of—thrills of joy and thanksgiving—thrills that come along in the line of some remembered text that I never thought of before.

This is Monday morning. Last Saturday night we all sat up rather late in planting our new dynamo, and making attachments to the electric lights, so they would be ready to illuminate the saw-room at one o'clock this morning. When the expert who was putting up the plant announced that all was ready, we stationed ourselves in the room, which was pitchy dark, while he turned the lever and sent a current through the wires. In an instant the room was in a blaze of beautiful soft light from the incandescent globes. I called some friends to come into the room and see it. While they were making some experiments with the wires, the current was suddenly cut off. In an instant we were in utter darkness. But very soon, with a flash, the lamps were all in a blaze again. Perhaps these bright spiritual visions are hardly as quick as the electric current, but to the one whose heart is in perfect accord with Bible teachings, and to the one who is earnestly and honestly striving to follow Christ Jesus, texts of Scripture frequently light up with a wonderful new meaning, almost as vividly as did these beautiful electric lights. They fairly shine in their beauty and grandeur, and keep shining for evermore unless we darken them by deliberate acts of sin. For experiences like these, who would be guilty of such folly as to cloud and extinguish the light of God's love by things that can only sink us down in guilt and remorse.

As an illustration of the way these texts suddenly stand out with startling distinctness, I mention one that came into my mind a few days ago. I had been studying the lesson about restoring the daughter of Jairus. The servants came to him, saying, "Thy daughter is dead; trouble not the Master." Jesus, however, spake to him, saying, "Fear not; *believe only.*" The two words, "believe only," came into my mind with sudden and startling distinctness. It is an exhortation to faith. Jesus told the father, that, even though his daughter was *dead*, he need not fear nor be troubled, providing he had *faith—believe only.* Have faith in Christ; trust the matter entirely to his hands, and nothing more is needed, and the promise comes down to us to-day—fear not, believe only. Another text has been much on my mind of late, and it is this: Most of us are constantly relapsing into a sort of infidelity, or want of faith. We can not believe, and steadily hold fast to the belief, that God has any great amount of care for us individually; or, in other words, we can not comprehend that the whole human family is dear to him. While this was in my mind, the thought came to me of what Jesus said, in speaking of the lilies of the field—"Ye are of more value than many sparrows;" and this I have been saying

over to myself again and again: God cares for the sparrows; and he cares for the lilies, and he cares for all this great wide universe. But there is nothing in it all so dear to the heart of the great Creator as mankind—even sinful beings, such as we are. In fact, we are not to be compared with any thing else in the whole range of creation. "Ye are of more value than *many* sparrows." Now, if we hold fast to this one thought, God's love, his regard and his kindness, and his many promises, this thought itself shall give us this well of water springing up into everlasting life.

In closing this number of Our Homes it occurs to me that there are quite a few among our readers who feel like saying that I had better look to home and attend to my own affairs, instead of directing other people what to do, especially in this matter of unfinished orders. Never before, since the Home of the Honey-bees was started, have we been so much behind in filling orders. John says that, on Saturday night, we were over *eight hundred* behind. We are running night and day. We have pressed new hands into the service until there are people who are working for me whom I do not know by sight nor by name. For once in my life I have had the privilege of saying "yes" to almost every one who applied for work. Our gardening operations are sadly behind, and I had hoped to get a man or boy whom I could keep on the grounds. Just as soon as we get one taught the ways of our work, a message is sent from the factory for "More help!" That you who are suffering for the want of goods may have a little more charity, I will try to explain a little the difficulty of refusing to receive more orders or of returning the money. These 800 letters containing orders are scattered through our offices, packing-rooms, machine-shop, tin-shop, saw-room, wax-room, type-room, yes, and even into the greenhouses; and when somebody complains that his order is not filled, it takes a smart clerk sometimes an hour or two to find the order at all. If the goods are already gone, the book-keepers can generally answer; but even their work is so much behind that we have of late been sending a postal-card notice of shipment, by the first train after the goods were loaded on the cars; then the book-keepers can take a little more time to make out the invoice, and to adjust the balances, etc. It is a harder matter to get new hands to take hold of the book-keeping than almost any thing else. Again, every mail brings us more or less additions to orders, change in orders, countermand in orders; and a great many ask us to put their goods in with those ordered by some neighbor, This overhauling orders in process of being filled is very laborious, and seriously interrupts the workmen among the machinery. We try to fill orders in rotation, but even this can not be done. Machinery breaks down, hands get sick, and a variety of things occur to stop a certain order; while one for something a little different, even though it came a little later, can go as well as not. All these workmen numbering somewhere between 150 and 200, must be kept busy. While some orders are a month old, others, for a single lawn-mower, or even a honey-extractor or bee-hive, that happens to be ahead in stock, can go by next train; therefore it sometimes happens that a man may say with justice something like this: "You filled my neighbor's order within a week; yet mine has been with you for over a month." Others complain because we give them no notice of the delay, nor tell them what to depend on. Just now we hardly know what you *can* depend on; and to hunt up all the orders that are daily waiting for broken machinery to be repaired, or other similar accidents, would take more time than to fill the orders themselves. We stand ready to do *this*, however: To return your money promptly whenever you get tired of waiting. But with such a mass of business as we have now, every little while there is complaint that an order can not be *found*. One man asked to have his money returned or his goods sent; but it took some *three days of hard work* to find his order. When discovered we found it pinned fast to another man's order. He has asked to have his goods go along with those belonging to a neighbor; and to make sure they would go together, it was pinned fast to said neighbor's order. In the hunt, the two letters were supposed to be from the same man. The following letter shows the way in which my Christianity is frequently called in question:

Sir:—I sent you an order the 4th of April last, and received an answer that you had received it all right; since then I have not heard. Now, my Christian friend, is that the way you do business, or am I only an exception? It causes me a great deal of inconvenience, as Mr. Evans gave me an order which was put in with mine. He has bought 30 colonies, and is waiting for his smokers and wire, and nearly every day he comes and "dogs me" for his goods. He has finally concluded to write you and find out whether or not I have sent the order *at all*. Now, if you are so rushed as to make such unnecessary delay, I think you had better apply a little more genuine common sense, and real Christianity mixed, and employ a few honest and good men to attend to your customers' orders, for you know there is in every human being a desire to get what he has bought and paid for, within a reasonable time, say nothing about such delays as this. You undoubtedly remember a passage in the Bible that says, "Do unto others as you want them to do unto you." Now, when you order goods expecting them to be sent within a reasonable time, and you wait patiently over a month, and receive only a card, saying that the order and money had been received, and nothing further, I do not believe you would like to be treated in this way, would you? Now, if you have not sent the goods, please return the money, as we can not wait till next spring for the goods. N. C. EVANS.

Mt. Horeb, Wis., May 9.

Friend E., I agree with you exactly. I should *not* like to be treated in that way. I am happy to tell *you*, however, that your goods were sent May 6, three days before you wrote the above letter. Your suggestion in regard to hiring good and honest men strikes one of our great troubles. I believe that *honest* men are as plentiful here as anywhere; but *competent* men—men who can, without experience, go into such a whirl-

pool of business as ours, and help things along, are not very plentiful anywhere. The objection to having a great stock of things *ahead* is this: Only two years ago we had so many things in our warehouse that were not used nor wanted, that we had to cut our working force down to eight hours a day, right in the month of May. Worse still, a good deal of the work made up ahead was superseded by something better, and had to be sold at a loss, or thrown away. We did not anticipate this present *great* rush this season. We are, however, now planning a larger warehouse than ever before, with a railroad track on each side of it. One train of cars fills it with material, and the other unloads it as it goes to our customers; and another railroad is now in process of construction, which passes through our grounds, giving us an outlet *east and west* as well as north and south, as heretofore. The burning of friend Lewis' plant has had something to do with this present rush. Another thing, friend E., you sent your order in April—the very month when the great rush of the season usually begins. You know we have cautioned you in our price list about waiting until the great hurry of the season came, before giving us your order. Your goods were not shipped for a month and two days after you ordered them; and if you will tell me what will make the matter satisfactory, I will try to adjust it in a Christianlike way; and I wish to say to all the other friends, tell me in a Christianlike way how much you have suffered by our apparent bad management, and I will try in a Christianlike way to make the matter satisfactory. But please do not do it until we get a little out of our present fearful crowd and jam. I do feel greatly and deeply thankful for your kind confidence and encouragement, of years past; and even though many of you *have been* badly used for a short time back, I venture to subscribe myself, notwithstanding,

Yours in brotherly love, A. I. ROOT.

EDITORIAL.

The steps of a good man are ordered of the Lord.—Ps. 37:23.

EXHIBITS FOR THE WORLD'S FAIR.

DR. MASON sent us the following, which he desires us to add to his article on page 371. As the latter has been made up, ready for the press, we will add the same here:

I wish that all who are thinking of making an exhibit would let me know soon about how much space they will probably need; that is, about how many square feet of floor space. An average of over 230 feet each was occupied by the six principal exhibitors at the Ohio Centennial in 1888, where our friend A. I. Root's exhibit was crowded, although he was assigned a space of about 400 square feet, and some exhibitors with less than 70 feet made nice exhibits, and secured their share of premiums. Should the six or seven States nearest to Chicago make creditable exhibits, to say nothing of other States, there will be a grand display; but it is to be hoped that California, with her usual energy and vim, will not be one whit behind other States, and that Maine and sunny Florida, and that monster State, Texas, and all between, will do their share toward showing to the world a goodly sample of the sweetness within our borders; and we expect to be nobly backed by our Canadian friends, and we ought not to let them outdo us. I am corresponding with some of our leading exhibitors, to get their views for the benefit of all; and I have already written to some parties in the Old World, in the interest of the honey display; and when I speak of the honey display, I mean every thing connected with our industry. A. B. MASON.

Auburndale, O., May 9.

DOUBLE TOP-BARS, ETC.

ON page 380, mention is made of a top-bar having openings made with a wabble-saw. In my hand is a similar top-bar from E. M. Tennent, Willett, N. Y., only, instead of having slots made in it horizontally, there are eight ¼-inch holes bored. These holes will serve as a passageway for the bees, and, very likely, as a Hill device, or any thing of that sort. Ernest says that he has gathered from several letters, from those who have used double top-bars, that a narrower top-bar, if made double, will answer equally well in preventing burr-combs; that is, a top-bar ⅞ inch square will answer all right, providing it is slotted so as to make it equivalent to a double top-bar. If not slotted, it must be fully an inch wide to give us good results. Are there others who have used double top-bars, who have noticed this? The idea seems to be this: The opening forming a bee-passage produces something of the conditions of a slatted honey-board.

SELLING SECRETS FOR A SUM OF MONEY.

OUR older readers remember how often I have denounced this custom, and how often I have insisted that nothing valuable ever comes in this way—that is, nothing that can not also be found in books and periodicals. Of late, several good friends of mine have called my attention to the wonderful discovery of Dr. A. Wilford Hall, editor of the *Microcosm*. Dr. Hall, so it is said, has discovered a method of treating disease without the use of medicines; and so wonderful were the results that it was claimed that one could live to be 100 years old or more, by this drugless remedy. The price is $4.00, and the purchaser must sign a printed agreement not to divulge the secret of the treatment. I was quite willing to furnish the $4.00, but very reluctant to sign such a pledge. I did so, however, and I am glad to be able to say that the treatment is, in my opinion (at least in my own case), valuable. Notwithstanding my pledge, however, I feel that I can, with a perfectly clear conscience, say that the treatment is not new, neither is there any discovery about it. It is simply a revival of one of the lines of water-cure treatment, known, nobody knows how long ago, and the whole thing is well known to our physicians, and fully described in our medical books. In fact, I can, if our readers wish, copy the whole thing from Dr. Kellogg's book, entitled "Rational Medicine," page 663. And Dr. Hall himself gives a lot of quotations in regard to the value of his discovery; and these quotations are copied from "*Chicago Medical Society Trans.*" What has already appeared in print, of course any publisher is at liberty to copy, giving proper credit. Now, although good may result from reviving this branch of water-cure treatment (and I feel sure it will result), I think that Dr. Hall should be published as a swindler for taking money from those who are out of health, for something that is already well known. The most lamentable feature in the case is that Dr. Hall claims to be a Christian, and would persuade suffering humanity that God has revealed this wonderful drugless treatment to him, that he may take $4.00 apiece from his fellow-men, for a little pamphlet of only a few small pages. I am told that he has already received a good many thousand dollars in this way. I am sorry to say that many of the testimonials come from ministers of the gospel, and I do think these ministers ought to be ashamed of themselves.

CORKS FOR HONEY-BOTTLES.

WE extract the following from a private letter from Chas. F. Muth, on the subject as above:

All corks should be scalded with hot water before they are pressed into the necks of bottles. Put your corks into a bucket and pour hot water over them, when they will be as pliable as rubber. CHAS. F. MUTH & SON.

Cincinnati, O., March 14, 1890.

LOOK OUT FOR THE BOGUS DICTIONARY.

DOUBTLESS some of you have seen flaming advertisements of a complete "Unabridged Dictionary" for three or four dollars. When the notice first came out we ordered a sample; and, without orders, one of the books was sent to our office *C. O. D.* Now, it is an unheard-of thing to bring a package into the office of the Home of the Honey-bees with "C. O. D." on it. One of the boys brought it in, and, without noticing the C. O. D., the book was opened and examined. As soon as I looked inside of it, it went right straight back to the express office, and the publishers tried to make us keep it, "*because we undid the wrappings!*" The whole thing is a swindle from beginning to end. I would add, that it is a reprint of an edition issued in 1847—43 years ago, but I doubt whether any thing was known as poor and shabby even at that time. There is not a single illustration in it, except in the back part; and in the body of the work there is not a reference to any of the illustrations in the back part. How much good do the illustrations do you in that shape? After some jangling about it, we were required to pay the express charges back on the miserable thing.

ARTIFICIAL COMB HONEY AND MANUFACTURED SCIENCE.

THIS is the title of an exceedingly well-written article in the *Popular Science Monthly* for May, by Allen Pringle, President of the Ontario Bee-Keepers' Association. The writer locates the source of the falsehood regarding manufactured comb honey to Prof. Wiley's article, which appeared in the *Popular Science Monthly* for June, 1881, and alludes to the fact of its having been copied in the *American Encyclopedia*, and in the Supplement to the *Encyclopedia Britannica*, besides being copied through the press generally. It seems that the editor of the *Popular Science Monthly* was not aware until recently that the mischief took root in his magazine. Just as soon, however, as he was informed of the fact, he asked Mr. Allen Pringle—a bee-keeper and a scholar—to reply to it, and he has done it in a masterly manner. We should be glad to publish the article entire; but as our space is crowded, we can not; but we can not forbear quoting from the last paragraph, which reads as below:

I take the liberty of here suggesting to publishers of encyclopædias and scientific works, the wisdom of first submitting doubtful points and dubious assertions, made by men outside their special departments, to *practical* men in such departments, whether the latter be learned or unlearned, for the knowledge of an unlearned man touching his own particular line of business (even the science of it) may exceed that of the scientist both in accuracy and extent. Such a course would often save the specialist from humiliation, and spare the public the infliction of some very queer science, which, not infrequently, fails to dovetail with every-day facts.

There is one sentence in the above to which we wish to call attention; namely, that the knowledge of an unlearned man in his own line of business may exceed that of the scientist, both in accuracy and extent. Why is it that cyclopedias will sometimes, instead of going to practical men for information, employ some big-named scientist of little or no experimental or practical knowledge, to write up the facts? Allen Pringle is both learned and practical, and we hope, with Bro. Newman, that other periodicals will publish this masterly refutation as widely as they circulated the old Wiley fabrication.

FOUL BROOD.

BULLETIN 61, under date of April, 1890, of the Michigan Agricultural Experiment Station, treats on the subject as above, and it is signed by A. J. Cook. We have carefully looked it over, and consider it fully up to the times, and sound in its teachings. After treating of fungoid diseases in general, and dividing them into different groups as to form, such as micrococci, bacteria, spirillum, and bacillus (under which latter head comes foul brood), Prof. Cook goes on to describe foul brood in particular—its microscopic appearance, etc. His description of the symptoms of foul brood is good. Under "Remedies" he treats briefly of salicylic and carbolic acid. We are glad to see that he does not recommend them as a cure. Even our much-respected friend Chas. F. Muth does not recommend salicylic acid now, because he can not prevent reinfection. When we had foul brood, an old classmate of your humble servant, Ernest, while home on a vacation from Cornell University, was induced to make "pure cultures" of foul brood in test-tubes. In other words, he made a sort of beef gelatine, which, after being boiled, was stoppered in test-tubes with cotton batting. After heating the point of a needle, and letting it cool, he immersed it into diseased larvæ, and then plunged it into beef gelatine, which under the inoculation very soon became cloudy. These experiments were conducted with the greatest of care. "Now," said he, "if carbolic acid is a fungicide, it ought to arrest its progress." Into some of the inoculated cultures he introduced a small quantity of carbolic acid, and left it for a time. Instead of killing the bacilli as we expected, it had no effect upon it; for even after the addition of the acid other tubes could be inoculated. The phenol was administered in the proportions recommended by Frank Cheshire. That this was the real foul brood he had been treating, and not some other growth, was evidenced by examination with the microscope. If this experiment means any thing it means that carbolic acid has little if any effect as a fungicide. While it *apparently* kept down the disease in our apiary, I somewhat doubt whether it did any *real* good. I am glad to see that Prof. Cook recommends that sure and reliable method, transferring, as first announced by Mr. M. Quinby, and by him styled the "fasting" method, and, later, recommended by D. A. Jones. It never failed with us. Where hives are boiled for some minutes, the disease does not reappear. Some *seconds* is hardly safe, as the spores do not yield readily to a boiling temperature. Prof. Cook very much doubts whether the disease resides in the blood of the bees or queen, as suggested by Cheshire and argued by R. L. Raylor. We have repeatedly taken queens from diseased colonies, and dropped them into perfectly healthy ones, and no trouble followed. But that it does reside in the honey, and that it can be carried by robbers to all parts of the apiary, is beyond any question or doubt with us. Scores of instances have proved this. We are glad to recommend this bulletin to any who may have had foul brood, or have any doubt as to whether they have it or not.

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IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

9tfdb **OLIVER HOOVER & CO.,**
Mention this paper. **Snydertown, Pa.**

4-FRAME NUCLEI, Tested Queen, Brood, and plenty of Bees, Italians, for $3.50. Imported queens, $4. W. A. SANDERS, Oak Bower, Hart Co., Ga.

LOST! The old prices on Bee-Hives, and new ones found. Send for circular—FREE. **L. J. TRIPP, Kalamazoo, Mich.**
9tfdb Please mention this paper.

ITALIANS For pure Italian bees and queens, and directions to Italianize common bees, address F. H. & E. H. DEWEY, 55 Mechanic St., Westfield, Mass.
Please mention this paper.

CHENANGO VALLEY APIARY.

Please give me your orders, and try my fine yellow Italian queens; are from imported stock, well known to my customers. Send for circular

Two-frame nucleus, with queen, in June, $2. Tested queen, $1.50; untested, $1.00. 8tfdb MRS. OLIVER COLE, Sherburne, Che. Co., N.Y.

☞In responding to this advertisement mention GLEANINGS.

That Hundred-Dollar Queen.

$1 will purchase a daughter of this wonderful queen. Descriptive circular free. Address
9tfdb AM. APICULTURIST, Wenham, Mass.
Please mention this paper.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
5tfdb **CHAS. DADANT & SON, Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS.*

Southern Bee-Keepers, Send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.
Please mention this paper.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

AFTER HIAWATHA.

BY SECOR.

HO! ye gleaners after knowledge
In the field of apiculture,
Stop a moment, please, and read this,
Stop and read this advertisement.
Send and get my creamy MONTHLY,
(I will send three samples gratis)
It contains the views of leading
Bee-men on some special topic;
Points out errors; makes you ponder,
And abandon wrong ideas.
If you'd march with those who "get there,"
Send your stamps to "Hutch the hustler"—
Fifty cents per annum only;
Twelve REVIEWS for only fifty.

Address BEE-KEEPERS' REVIEW,
W. Z. HUTCHINSON, Ed. & Prop. Flint, Mich.

☞In responding to this advertisement mention GLEANINGS.

TESTED CARNIOLAN QUEENS, $2.50 each; untested, $1, or 6 for $5. Send for price list of Italian bees and queens, bred in my Nappanee apiary. 8tfdb I. R. GOOD, Vawter Park, Ind.

VIRGIN QUEENS.

Pure Virgin queens at 50 cts. each, or 40 cts. each per 100. J. B. LAMONTAGUE, Winter Park, Fla. 8-9-10

THE BRIGHTEST

Five-banded, golden Italian Bees and Queens, and the **Reddest Drones.** Very gentle; very prolific; good honey-gatherers—working on red clover—and the **Most Beautiful** bees in existence! Took 1st premium at Michigan State Fair, in 1889. Reference, as to purity of stock, Editor of *Review.* Sample of bees, five cents. Untested queens, before June 15, $1.25; after June 15, $1.00. Tested (*at least* 3 bands), $2.00; selected, tested (4 bands), $3.00; breeding queens (4 to 5 bands), $5.00. Virgin queens, 50 cts.; 5 for $2.00. Safe arrival and satisfaction guaranteed. **JACOB T. TIMPE,**
8-15db **Grand Ledge, Mich.**

☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange empty Simp. L. combs at 10 cts. each, for wax or offers. 5tfdb OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—To exchange one Green's solar wax-extractor, *new*, for an incubator or Italian queens. G. C. HUGHES, 6tfdb Pipestem, West Va.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange comb foundation for beeswax. Samples on application. 8-11db J. P. CONNELL, Hillsboro, Texas.

WANTED.—To exchange for sections, fdn., honey, or offers, an American fruit-evaporator, No. 2; capacity, 10 to 12 bu. apples per day. For description of evaporator, write to American Mfg. Co., Waynesboro, Pa. O. H. HYATT, 9tfdb Shenandoah, Ia.

WANTED.—To exchange an improved Excelsior incubator, 200-egg size, used only two months, for Italian bees. G. N. DOTY, Clyde, Mich. 10-11d

PLY. Rocks, White and Laced Wyandotte eggs, in exchange for foundation, sections, Japanese buckwheat, or offers. T. G. ASHMEAD, Williamson, Wayne Co., N. Y.

WANTED.—To exchange one garden wheel-hoe complete, good as new, called Planet Jr., for one Green's solar wax-extractor that is in *good* repair. JAMES G. HALL, Wyanet, Bureau Co., Ill.

WANTED.—To exchange a good improved farm of 160 acres. Crops on the ground. Every thing ready for business, for apiary or supply business or both. Iowa or Wisconsin preferred. Particulars for particulars. 10d MATTHEW DODDS, Sauk Center, Minn.

WANTED.—To exchange photo outfit for Root's chaff hives in flat, or safety bicycle. F. SHILLING, Jewett, Ohio.

WANTED.—To exchange a fine house and lot in the town of Cadillac, Mich., for bees. This house has rented as high as $18.00 per month. WALTER HARMER, Manistee, Mich.

WANTED.—To exchange bees and queens, for Barnes saw, Novice extractor, honey-knife, and Excelsior printing-press with 5½x9½-in. chase. 3-11d S. A. SHUCK, Liverpool, Ills.

WANTED.—To exchange one or more finely bred Scotch collie (Shepherd) puppies, for Italian queens, or supplies. 11-12d F. W. GEORGE, Williamstown, Iowa.

WANTED.—To exchange young queens, for honey, or printing. J. C. KING, Fort Deposit, Ala.

WANTED.—To exchange for bees by the pound, or beeswax, a one-horse, railway power, sawtable, shafting, pulleys, and belting, for hive-making; one 18-in. Buckeye Sr. lawn-mower, one Whitman foundation-pump, all in perfect order. Also heavy or light Given foundation, 8½x15 or 10x15. W. D. WRIGHT, Altamont, Albany Co., N. Y.

WANTED.—To exchange Italian bees and queens for maple sugar. Not *less* than 50 lbs. wanted. MRS. A. M. KNEELAND, Box 77. Mulberry Grove, Bond Co., Ill.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have on hand about 20 fine hybrid queens which I will sell at 30c each, or 4 for $1.00. Selected, 50c. A. A. WEAVER, Warrensburg, Johnson Co., Mo.

Two black and 6 fine prolific hybrid queens for sale. Any one sending 25c each, and ready-provisioned cage, can have them. T. K. MASSIE, Concord Church, Mercer Co., W. Va.

100 black and hybrid queens to one address for $25.00. 11-12d ANTHONY OPP, Helena, Ark.

I have a few hybrid queens with some connection mixture, 50c each. W. H. FOSS, Topeka, Kan. Care of A. T. & S. F. Store house.

A few hybrid Italian queens for sale at 30c each. LLOYD SECHRIST, Pleasant Home, O.

I still have 6 black queens for sale at 25c each. W. P. W. DUKE, Nettleborough, Ala.

Twenty pure black queens for sale at 30c each, or 4 for $1.00. Ready by June 5. THOMAS NICHOLS, Dixie, Nicholas Co., W. Va.

I have about 50 hybrid queens that I will mail to those who speak quick for 25c each. I wish to requeen my apiary, and dislike to pinch the heads of so many queens. T. P. GILLHAM, Lincoln, Tenn.

Fifty hybrid queens for sale, 40c each; 3 for $1.00. J. M. KINZIE, Rochester, Mich.

Black and hybrid queens at 35c each. DAVID DANIEL, West Millville, Clarion Co., Pa.

Mismated Italian queens at 35c each; 3 for $1.00. E. S. VICKERY, Hartwell, Hart Co., Ga.

LET US HAVE FAIR PLAY,

is all we ask. We know you will like our Carniolan bees, because we breed from **Pure, Imported Stock.** Queens, $1.00 in June. **Give them a Fair Trial.** Send for printed matter free. Safe arrival. Address **E. L. PRATT,** 8 11db **Pratt Bee-Farm, Marlboro, Mass.**

☞In responding to this advertisement mention GLEANINGS.

LOOK! Italian Queens, 10 to 75c. Tested, 75c; untested, 45; hybrids, 10c Safely delivered by F. C. MORROW, Wallaceburg, Ark.

Please mention this paper.

WHAT TO DO,

—AND—

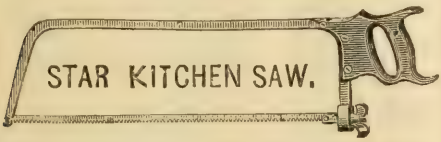
How to Be Happy While Doing It.

The above book, by A. I. Root, is a compilation of papers published in GLEANINGS in 1886, '7, and 8. It is intended to solve the problem of finding occupation for those scattered over our land, out of employment. The suggestions are principally about finding employment around your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. I think the book will be well worth the price, not only to those out of employment, but to any one who loves home and rural industries. Price in paper covers, 50 cts.; cloth, 75 cts. If wanted by mail, add 8 and 10c respectively.

A. I. ROOT, Medina, Ohio.

Saws that Never Need Filing.

Ever since we first gave notice of the Star saws, some years ago, the blades of which were sold so cheap that a new one could be put in cheaper than to have a saw filed, there has been an immense trade in them. The Millers Falls Co. have recently got out the saw shown in the cut below, that takes

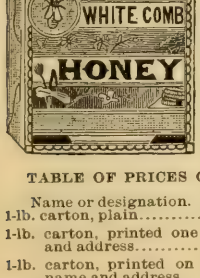


a 14 inch blade, and yet the price is only 50 cts.—saw, blade, and all. Extra blades cost a dollar a dozen; therefore, when your saw needs sharpening it costs less than 10 cts. to have a bright new blade, ready for business. And this is not all. These Star saw-blades, by some special process, are given a higher temper than any thing else in the saw line. You can saw a board or a bone, saw off a gas-pipe or a gun-barrel, and all with the same saw. The first one I ever saw I carried down into our machine shop, gave it to our machinist, and told him to see what it was worth. After a few minutes' trial he asked the price and handed out the money, without a word. The truth is, he had never seen any thing like it before, for sawing iron and steel. The one we picture is made a specialty, to be hung up in the kitchen; and I rather think, my friend, you can not make your wife a better present than to get her one of these saws, to hang up in her kitchen. If you behave yourself, may be she will lend it to you occasionally; but, be sure to bring it back when you are done with it. If you don't, there may be a family jar. If wanted by mail, the price will be 20c extra. Postage on blades, 10c per doz. Star butcher saws have been reduced in price. See page 42 of our latest price list.

A. I. ROOT, Medina, Ohio.

PASTEBOARD BOXES,

Or Cartons, for One-Pound Sections.



Bee-keepers are realizing more and more the value of these cartons for putting their comb honey in marketable shape. Other articles of home consumption are put up in a neat attractive way, and in shape to be handed to the customer, and carried safely without wrapping. Why not sections of comb honey, especially when the cost of the boxes is so low?

TABLE OF PRICES OF 1-LB. SECTION CARTONS.

Name or designation.	Price of 1	25	100	500	1000
1-lb. carton, plain	2	.20	.60	2.75	5.00
1-lb. carton, printed one side, name and address			.90	3.50	6.00
1-lb. carton, printed on both sides, name and address			1.00	3.75	6.50
1-lb. carton, with lithograph label, one side	3	.30	1.00	4.50	8.50
1-lb. carton, with lithograph label on both sides	3	.40	1.30	6.25	12.00
1-lb. carton, with lithograph label one side, name printed			1.30	5.25	9.50
1-lb. carton, with lithograph label, printed with name on both sides,			1.70	7.25	13.50
Lithograph labels, 2 designs, for 1-lb. cartons			.35	1.60	3.00

If sent by mail, postage will be 2 cts. each; or in lots of 25 or more, 1 cent each. All the above have tape handles. Price, without tape handles, 5c per 100, or 75c per 1000 less. The quality of the boxes is fair, being made of strawboard, plated outside. If more than 1000 are wanted, write for prices.

A. I. ROOT, MEDINA, O.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The demand for comb continues good, 1-lb. white selling at 14 cts.; 1-lb. dark, selling at 10@12; extracted white, 5@7; extracted amber, 5@6. We are in good shape for a new crop, which we look for next month.
May 20. CLEMONS, CLOON & CO.,
Cor. Fourth and Walnut Sts., Kansas City, Mo.

DETROIT.—*Honey.*—There is very little good honey in the market, and by the time new comes in the market will be nearly bare; comb is still quoted at 10@13 cts; extracted, 7@8. *Beeswax* in demand at 26@28. M. H. HUNT,
May 20. Bell Branch, Mich.

NEW YORK.—*Honey.*—Honey market quiet. Extracted California, 7½@8; Cuban strained, 79 cts. per gallon. *Beeswax*, supplies nearly exhausted; demand good. We quote 29@30 per lb.
F. G. STROHMEYER & CO.,
May 19. New York.

BOSTON.—*Honey.*—No change in honey market here since last writing. BLAKE & RIPLEY,
May 19. 57 Chatham St., Boston, Mass.

SAN FRANCISCO.—*Honey.*—New honey is already coming in, and we quote 5½@6. Comb honey, 9@12. *Beeswax* scarce, 23@24.
SCHACHT, LEMCKE & STEINER.
May 11. 16 & 18 Drum St., San Francisco, Cal.

COLUMBUS.—*Honey.*—As the season for old honey closes, the demand decreases. Sales slow at 14 cts. for choice stock. No sale whatever for off grades.
May 20. EARLE CLICKENGER, Columbus, O.

ST. LOUIS.—*Honey.*—We quote market quiet, as follows: Choice white clover, comb, 12@12½; dark and inferior, 8½@9½; extracted and strained in cans, 6½@8½; barrels, 5@5½. Prime *beeswax*, 27.
D. G. TUTT GROCER CO.,
May 19. St. Louis, Mo.

ALBANY.—*Honey.*—Owing to the continued cool weather the demand for honey during the past week has been very good, at quotations which remain unchanged. C. MCCULLOCH & CO.,
May 22. 339 Broadway, Albany, N. Y.

ONE-PIECE
SECTIONS
A SPECIALTY.

A. I. Root's style, $3.00 per 1000. Address
B. WALKER & CO., Capac, Mich.,
10tfdb **or Wauzeka, Wis.**
☞In responding to this advertisement mention GLEANINGS.

BARRED PLYMOUTH ROCK EGGS, $1.00 per 13. L. C. AXTELL, Roseville, Ill. 8tfdb

Japanese Buckwheat ½ bush. 65c; 1 bush., $1.10. D. M. WEYBRIGHT, New Paris, Ind.

KIND WORDS FROM OUR CUSTOMERS.

MARCH'S CAULIFLOWER SEED.

I sowed cauliflower seed on the same day, and in the same bed, from three seed firms, and I tried to sow them just the same; but when they came up, March's seed stood three to one over the other sorts. GEO. M. KELLOGG.
Pleasant Hill, Mo., Apr. 14.

BENTON MAILING-CAGE.

Your imported queen, mailed to me on the 6th, arrived in fine condition on the 10th. I safely introduced her according to directions accompanying her, and upon examination on the 12th I found one frame nearly filled with eggs. I must say your caging and mailing methods are unsurpassed.
Lavaca, Ark., May 14. W. H. LAWS.

ITALIAN ✻ QUEENS.

From June 10th to Oct. 1st.

Why you should purchase of Wood:
He has had many years' experience.
His queen-cells are built in full colonies.
He uses no lamp-nursery.
He is located where there are no black bees, and where foul brood never was known. Fully 95 per cent of his queens prove purely mated.
He fills orders promptly.
He warrants every queen equal to those of any first-class breeder in America.
Price 75 cts. each; $8.00 for 12.

Address **JAMES WOOD,**
11tfdb **North Prescott, Mass.**

☞In responding to this advertisement mention GLEANINGS.

A BARGAIN for some one. One hundred colonies of bees in S. frame, double story, and in No. 1 order. Will take $200.00.
11-12 ANTHONY OPP, Helena, Ark.

BRIGHTEST
GOLDEN ITALIAN BEES AND QUEENS,
—AND THE—
REDDEST DRONES IN THE WORLD.

Untested, $1.00 | Tested, $2.00 | Select tested, $3.00
Special breeding, guaranteed to please, $5 00.
L. L. HEARN, - - FRENCHVILLE, - - W. VA.
11tfdb Please mention this paper.

A New Discovery.

THE COMMON-SENSE HONEY-EXTRACTOR is strictly scientific, powerful, durable, handy, clean, and rapid, and differs from all others, and is cheaper than the cheapest at bankrupt prices. CIRCULARS FREE.
REV. A. R. SEAMAN,
New Cumberland, Hancock Co., W. Va.
9 10d Please mention this paper.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians,** the result of eleven years' careful breeding. Prices: Warranted queens, $1.00 each; 3 for $2.50. Strong 3 L. frame nucleus, with warranted queen, $3 00. Safe arrival and satisfaction guaranteed. Those who have never dealt with me, I refer to A. I. Root, who has purchased of me, during past ten years, 415 queens. Address
J. P. MOORE, Morgan, Pendleton Co., Ky.
☞Money-order office, Falmouth, Ky.

☞In responding to this advertisement mention GLEANINGS.

1890 **FINE ITALIAN QUEENS,** each, 75c; six, $4.00. Will be up with orders by June 10th. W. H. LAWS, Lavaca, Ark.

BEES! Yes, all the bees you want, at 75 cts. per lb.; 200 full swarms to draw from. Can fill all orders for bees by return mail. R. E. SMITH, Tilbury Center, Ont. Box 72. **BEES!**

☞In responding to this advertisement mention GLEANINGS.

TESTED ITALIAN QUEENS, $1.00.
W. R. GARDINER, Eustis, Fla.

CHAFF AND SIMPLICITY HIVES shipped on receipt of order. Price list free.
11tfdb E. J. SHAY, Thornton, Taylor Co., W. Va.

Eaton's Improved SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address
FRANK A. EATON,
2-13db **Bluffton, Ohio.**

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—ITALIAN BEES & QUEENS at a very low price. Address
6tfdb *OTTO KLEINOW,*
No. 150 Military Ave., Detroit, Mich.

BEE-HIVES, SECTIONS, ETC.

WE make the **best** Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at $3.50 per 1000.
☞ Parties wanting more should write for special prices. No. 2 sections, $2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb
G. B. LEWIS & CO., Watertown, Wis.

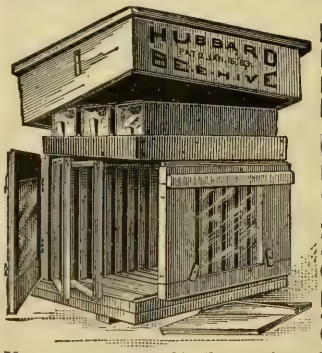
☞In responding to this advertisement mention GLEANINGS.

✻THE ✻ CANADIAN✻

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.
The D. A. Jones Co., Ld., Beeton, Ont.
☞Please mention GLEANINGS. 6-11db

FORT WAYNE, IND.



CIRCULARS FREE. ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.
G. K. HUBBARD, 277 S. HARRISON ST., FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.
VERY CONVENIENT. AGENTS WANTED.
10c For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied
Please mention GLEANINGS. 8-13db

FOR SALE - - BEES.

Good colonies in shipping-cases, with 9 Langstroth frames. Hybrids, $3 00, delivered at railroad station any time after May 1.
8tfdb MISS MABEL FENN, Tallmadge, Ohio.
☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**
Please mention this paper.

BROWN LEGHORNS STILL AHEAD. EGGS, $1.00 PER 13, $1.50 PER 26. A. F. BRIGHT, Mazeppa, Minn.
7tfdb

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50 COLONIES OF ITALIAN and HYBRID BEES for sale at $3 50 per colony, in shipping-boxes, L. frames. Also eggs from W. Wyandottes, W. Minorcas, and Pekin Ducks. Eggs, $1.00 per 13.
9-10-11d M. H. FAIRBANKS, Homer, N. Y.
Please mention this paper.

Bee-Keeping for Profit

IS THE TITLE OF

Dr. Tinker's New Hand - Book.

It gives his **New System** of the management of bees complete, telling how to get the largest yields of comb and extracted honey, and make the industry of bee-keeping a profitable one. The claim is made that our old methods and appliances are of such a nature that it does not pay even the expert bee-keeper to keep bees except in very favorable localities. The New Book tells why these failures occur and how to prevent them, giving the general principles essential to a profitable system. The work should be in the hands of every progressive apiarist. It is well illustrated, and will be sent to any address postpaid for 25 cts. Please remit by postal note. Address

DR. G. L. TINKER, New Philadelphia, Ohio.

Please mention this paper. 10tfdb

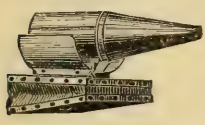
QUEENS.—Fine home-bred Italians, and imported, from Waldensian Valley. Circular free.
10-11-12d CHRISTIAN WECKESSER, Marshallville, O.

FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks. Address **N. A. KNAPP,**
4tfdb **Rochester, Lorain Co., Ohio.**
☞In responding to this advertisement mention GLEANINGS.

LOOK! Three-frame nuclei with Italian queen from imported mother, $2.50 each. Satisfaction guaranteed.
M. W. SHEPHERD, Rochester, O.
In writing to advertisers please mention this paper. 10 14db

BIG 3-FRAME NUCLEI, WITH QUEEN from imported Italian mother, for $2.50. Full colonies low. Thirty Rose Comb Brown Leghorn eggs for $1.00. Safe shipment guaranteed.
10tfdb G. W. GILLET, Wellington, Ohio.
☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in,	postpaid	...$2.00
Conqueror "	3	"	"	... 1.75
Large "	2½	"	"	... 1.50
Extra (wide shield)	2	"	"	... 1.25
Plain (narrow ")	2	"	"	... 1.00
Little Wonder,	1¾	"	"	... 65
Uncapping Knife.....				..... 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**
☞In responding to this advertisement mention GLEANINGS.

Ah THERE! One untested Italian queen, 75c; three for $2.00; tested, $1.50. One untested Carniolan queen, $1.00; three for $2.50; tested, $2. Bees by the pound and nucleus. Send for price list. Reference—First National Bank.
10tfdb H. G. FRAME, North Manchester, Ind.
Please mention this paper.

☞In responding to this advertisement mention GLEANINGS.

Look Here! Supplies Cheap

Italian and Albino Queens and Bees; Chaff and Simplicity and Nonpareil Hives.
Extractors, Smokers, Foundation, Surplus Section Boxes, Root's Perforated Zinc. Price List Free. Write for One.
A. A. BYARD, WEST CHESTERFIELD, CHESHIRE CO., N. H.
☞In responding to this advertisement mention GLEANINGS.

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125 COLONIES ITALIAN BEES AT BOTTOM PRICES. A. F. BRIGHT, Mazeppa, Minn.
7tfdb

Carniolan Queens.

Send for Descriptive Circular to

DR. S. W. MORRISON, Oxford, Pa.
9tfdb Please mention this paper.

Pure Italian Queens.

BEES, TESTED, $1.00; UNTESTED, 50 CTS.

I. GOOD & STEWART BROS.,
Sparta, White Co., Tenn.
☞In responding to this advertisement mention GLEANINGS.

Rheumatism * Bees.

No doubt the best bees for curing rheumatism are pure-bred Italians that prove to be good workers and work on red clover.

We have such if you want good stock to work with and to secure you plenty of honey.

Tested queens in May,	-	$1.50; in June,	- $1 25
Unt'd " " "	-	1.00; 3 for	- - 2 50
" " " June,	-	75; 3 for	- 2.00

For wholesale prices, nuclei, lbs. of bees, and all kinds of bee-supplies, write for our 16 p. circular.
9tfdb **JNO. NEBEL & SON, High Hill, Mo.**
Mention this paper.

Knickerbocker Bee - Farm.

SEND FOR

CIRCULAR & CALENDAR

FOR 1890 TO

GEO. H. KNICKERBOCKER,
Box 41. Pine Plains, Dutchess Co., N. Y.
10 11d Mention GLEANINGS.

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200 LBS. BEES.

50 Italian Queens

Bees, 90 cts. per lb.; Queens, $1.00 each.
S. C. PERRY, Portland, Ionia Co., Mich.
10-11-12d Please mention this paper.

SPECIAL NOTICES.

HENDERSON'S BUSH LIMA BEAN.

As the bush lima bean does not seem to go off this spring as we expected it, we reduce the price one-fourth after June 1. After June 15, if we have much stock on hand the price will be one-half the regular price of $1.00 per quart.

THE PLANT-TRADE, JUNE 1.

We have been short on almost every thing this spring, except celery. We have now in stock, and have had all along, large transplanted celery-plants, White Plume and Golden Self-blanching, and these are considered best for early. We have also at present all kinds of cabbage and all kinds of tomatoes, advertised in our seed catalogue. We are short on cauliflower, in spite of all the efforts we have made to set them growing. We are also short on pepper-plants.

JAPANESE BUCKWHEAT.

It will soon be time to sow buckwheat, and, of course, no one will think of sowing any thing else, after the record the Japanese has made. It has, in fact, brought the price of buckwheat down to a point seldom if ever known before. In our locality, from the 20th of June to the 1st of July is the usual time for sowing it. It will, however, usually give a crop almost any time during the month of July. As much as 50 bushels per acre have been secured, and it rarely sells for less than 50 cts. per bushel. It is harvested so soon after sowing the seed that you get quick returns. We have a large stock of seed ready to ship by the first train, at following prices. Per lb., 5 cts.; 40 cts. per peck; 75 cts. per ½ bushel, or $1.00 per bushel; $2 50 for 2 bushels; in lots of 10 bushels or more, $1.10 per bushel, bag included in every case, without charge. Put in two or three pecks per acre, according to the condition of the soil. Now, please bear in mind that there is always trouble in shipping small lots of buckwheat, either by freight or express, because the charges are more than the value of the seed. A few days ago a friend wanted a peck of buckwheat sent away down to Texas. After the figuring up, we found the cheapest way to get it to him was to send it by mail, at an expense of over $1.00 for postage, while the buckwheat and bag cost him only 40 cts. To prevent disappointment, ask what the probable expense will be, before you make your order.

FILLING ORDERS AT THE HOME OF THE HONEY-BEES.

At this date, May 28, we are still running night and day, and every thing is booming in every department. Hold on! There is one room in our establishment that has been for one or two days deserted and dull. When orders poured in until we were a *full thousand* behind, we decided to stop sending out price lists except to applicants; therefore the big printing press was shut down, and the pressman went to helping the boys in the next room to fill orders. For a time it seemed that nothing could keep pace with the flood of orders. We were 500 orders behind, then 700; and when it was more than 1000, things began to look desperate. By redoubling our efforts, however, and permitting those who could stand it to put in 14 or 15 hours a day, in one week we got the 1000 back to 700 again, and now we are reducing it still more; but many of our customers have lost all patience, and are demanding their money back.

Now, do not imagine, dear friends, that we are not able to fill orders for *any* thing promptly. One poor friend asked if we could not possibly send him a sheet of perforated zinc, letting the rest of his order remain. Why, we could send you any amount of zinc by return train, and, in fact, almost any thing else, except bee-hives and sections. All goods ordered by express or mail, have, with hardly an exception, gone within 24 hours. The great unfilled want is for sections, and the rainy weather has made it impossible to dry the basswood, and this has been one great obstacle in the way. We are now having beautiful warm sunshiny days, and the basswood is fast getting fit to work.

Of course, our dry-kiln is running night and day, with the rest of our machinery; but we find even that inadequate, unless backed up by bright sunshiny weather. As heretofore, many of our troubles and delays have been caused by hasty writing and imperfect addresses. We had a list of seven men who had sent us money, and yet their orders could not be found. Four of the seven have been straightened out and their things sent. The trouble was, in their letters of inquiry they wrote their names so badly that nobody could decipher them accurately. Oh, if you only *would* have your correct name and address printed on your stationery, all of you, what a great help it would be!

Wire Cloth.

For door and window screens, tacking over hives and nuclei for shipping, making bee and queen cages, and a variety of purposes. We have the following list of green and black wire cloth which is not exactly first class, but is practically as good for the purposes mentioned, and at prices MUCH BELOW the ordinary price. You can no doubt select from this list a piece to suit your needs. Price in full pieces, 1¾ cts. per square foot. When we have to cut it, 2 cts. In case the piece you order may have been taken by some one else before your order comes, please say whether we shall send the nearest in size, or cut one the size ordered at 2 cts. per ft., or give a second or third choice.

No. of Rolls, and Color.	Width, In's.	Length, Ft.	Sq. Feet.	Price of a Full Roll.	Pieces less than 100 ft. long. These figures are the number of square feet in each piece. Multiply by 1¾ cents for the price of piece.
10 green	8	100	67	$1.17	65, 65, 64, 63, 63, 63, 62, 54. 40, 33
1 green	10	100	83	1.46	
25 green	12	100	100	1.75	44, green; price 77 cts.
1 green	14	12	14	.25	
2 green	16	100	133	2 33	
1 black	18	100	150	2.62	
4 green	18	100	150	2.62	
1 black	20	100	167	2.92	
1 black	22	71	128	2.24	110 sq. ft., black; price $1.92
9 green	24	100	200	3.50	140, 140, 90, 40, 30, 20, 8, green.
1 black	24	100	200	3.50	
61 green	26	100	217	3.50	This is below reg. pr. of 1¾ c.
18 green	28	100	233	4.08	224, 224, 117, green; 233, black.
2 green	30	100	250	4.37	
3 black	30	100	250	4 37	
12 green	32	100	267	4.67	
1 black	32	100	267	4.67	253, black; price $4.43 255, black; price $4.46
14 green	36	100	300	5.25	270, green; price $4.72
1 black	36	100	300	5.25	150, black; price $2.62
8 black	38	100	317	5.54	269, black; price $4.70
3 green	38	100	317	5.54	258, black; price $4.50
3 black	40	100	333	5.83	317, black; price $5.54
8 black	42	100	350	6.12	350, green; price $6.12
1 green	44	100	367	6.42	

A. I. ROOT, Medina, Ohio.

Vol. XVIII. **JUNE 1, 1890.** **No. 11.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

A SOLAR WAX-EXTRACTOR FOR LIQUEFYING CANDIED HONEY.

RIPENING EXTRACTED HONEY BY MEANS OF A SOLAR WAX-EXTRACTOR.

THE illustration in GLEANINGS of April 15 has brought some inquiries in regard to the mammoth solar wax extractor shown there. A few explanations will probably make it better understood.

In size it is 5 ft. 3 in. x 2 ft. 9 in., and 8 in. deep. A chamber at the lower end, where a pan catches the melted wax, makes the entire length about 6 ft. It is made of ⅞-inch pine lumber. The bottom is of narrow matched stuff, to make it tight. It is thoroughly painted a dark color, inside and out, and covered with glass. On the upper part I have used window-sash, which is removable. The lower part, or chamber, has glass, also removable, for the convenience of getting at the wax-dish. It is mounted on wheels in front, for convenience in moving, with legs at the back end, giving it an incline of about 45 degrees.

This extractor works very nicely, as illustrated and described. But I will note some of the improvements suggested by its use. The window-sash are a little imperfect, as the bars of wood between the glass obstruct the sun so that the wax cools under them in their shadow. It would be better to have the glass unobstructed by bars, or at least have them as small as possible. Two large glasses, I think, in place of the sash, would be a decided improvement.

Reflectors would give some additional heat, and make the machine much more complete. I designed these to hinge upon each side, and to answer, when closed, as a cover to protect the glass and keep out the dust and rain when not in use, having them wide enough to shut together in roof shape, and lined on the inside with tins to reflect the sun. These can be fastened open at any angle desired, when used as reflectors.

A correspondent asks, "What prevents the combs from sliding down when they melt?" They will not slide down; but the wax will melt and run out, and leave the old comb and residue, which can be removed at your leisure. It gets out the wax in the best condition, and with the least labor of any method I have ever tried, and I have tried a good many ways; and I am not done yet. I have something else to say about the solar extractor. We all know how much trouble it is to liquefy granulated honey. But some one says, "Don't do it." But we have to do it sometimes; and when we have occasion to do a job of this kind, just place it in the solar extractor, if in cans or pails, or any convenient packages to go inside; or if in bulk, have a large pan on purpose. It is much better than any method where artificial heat is used. It can also be used to evaporate extracted honey by having a wire-cloth screen at the upper end, to be opened for ventilation. In order to make it convenient for melting or evaporating honey, I would suggest, instead of fixed legs at the back end, a standard with holes through it, and a pin with which to fasten the machine at any desired inclination. It could then be let down to a horizontal position for this purpose. Just put the honey in and go about your business. It won't burn nor spoil, but the work will be done in the cheapest and *very best* possible manner.

The greatest drawback I have found in the use of a machine of this kind is a lack of sunshine. You will be as astonished as I was when you come to use one, at the very few days in the whole season in which we have clear, unobstructed sunshine —a necessary condition for the complete success of

a solar extractor. And isn't it also possible that this lack of sunshine for the last few years plays an important part in the failure of the honey crop? Yet I regard it as a valuable acquisition to the apiary, in any locality; but in the South, in the land of perpetual sunshine, I should place it beside the extractor and foundation-mill for usefulness in the apiary—an indispensable labor-saving machine.

Now I am done. If you are ingenious I think you will be able to build the extractor, as described and illustrated. H. R. BOARDMAN.

East Townsend, O., May 8.

Friend B., I congratulate you on your discovery that the solar wax-extractor is the best thing for liquefying granulated honey. May be the idea has come up before; but if so, I had forgotten it. But, are you sure that the heat of the sun will never injure the honey? If so, it is a big item in its favor. In our greenhouse experiments we have had ample opportunity to see how many sunshiny days there are. But we have had an unusual amount of cloudy weather for three seasons past. Wait until we have a drouth; then you can render wax, and liquefy the honey to good advantage. The glass should most surely be put in greenhouse fashion—that is, so as to let the water run down unobstructedly, and large pieces of glass are certainly an advantage over the small ones. Would not a large screw, such as is used in the bottom of a music-stool, be the best thing to get the proper inclination? or, better still, have two such screws, one on each back corner. Now have the front raised on a pivot, and you can have any angle you choose. I suppose one reason why solar wax-extractors are so much more common in California is because of the perpetual sunshine there. In fact, I am told that they have at least some sunshine every day in the year, and a good deal of the time whole months without an obstructing cloud. For a honey-evaporator you must have ventilation both at top and bottom, to get the best advantage. We tried drying green corn in our greenhouse, but it would not dry a bit. It only turned sour unless ventilation was given sufficient to let a light stream of hot air pass over and through the corn.

EXHIBITIONS AT FAIRS.

PROF. COOK SUGGESTS SOMETHING IMPORTANT.

Dear Mr. Root:—You will remember that, at the Michigan State Bee-Keepers' meeting held last winter at Lansing, the question of exhibits at fairs was fully discussed. You will remember my surprise when some persons present said it was not necessary that the exhibitor should have produced the honey which he exhibited; that he might get it anywhere. At our Michigan Central Bee-Keepers' meeting the other day, the question came up again. It was the unanimous opinion of those present that all honey should be produced by the exhibitor, and all but one person thought it should be the product of the year in which the exhibition was made. I was appointed a committee to urge upon the authorities that this opinion should be embodied in a rule governing all future exhibitions at our State Fair. I have consulted the authorities, and find that we are too late for this year. The premium list is printed, and can not now be changed. I should like your opinion on this subject, and also the opinion of others. It seems to me that equity, and the entire aim of such exhibitions, demand that no person exhibit other than his own product. Fairs are not to stimulate hunting about to find beautiful honey, but to incite to its production. If this rule is adopted, then the neat, skillful apiarist, not the traveling collectors, will get the premiums. Ought he not to have them?

The other question, production during the year of the exhibition, might be opposed, as, during very poor years, it might be difficult to make a fine exhibit, and if a man made a fine design of wax he might desire to use it successive seasons. Yet even here it is the only fair way. Then all are on an equal footing, which would not be true if honey produced in previous years could be exhibited. Wax for ornament could be brought, no matter when fashioned; while that for premiums should have been produced the season of the exhibit.

Thus it seems to me that such a rule should be made to govern in all our fairs. The exhibit should be the product of the exhibitor, and should have been produced the year of the exhibition. Is this not so? Let others speak.

ADULTERATED HONEY.

Mr. R. A. Hardy, of Lampasas, Texas, sends me some extracted (?) honey which he says is sold in his vicinity by a bee-keeper in an adjoining town. He thinks some artificial feed was given to the bees, which they stored in the combs. He desires me to state through GLEANINGS what I think it is, and how prepared.

I should say that this is genuine honey—at least I see no reason to think otherwise. I do not know the kind. It seems rank, both in taste and odor, like some of our autumn honey at the North. There seems to be much wax in it, as though cappings were left in. In a mouthful of the honey one gets quite a mass of the wax. I should say that this was a very questionable way to prepare extracted honey for market, and I should not suppose it could compete with honey that is free from wax, etc. Bee-keepers should be careful to exclude all substances from extracted honey, else buyers will suspect adulteration.

FLORIDA BEETLES.

Dr. J. H. Hunt, Tallahassee, Florida, sends me several beetles in a strong box, with cotton, by mail. They came in nice shape, and all alive. He says he finds them quite abundant about his hives. He reports that they seem eager to get into the hives, but for what purpose he can not tell. He can discover that they do no benefit or injury. He can almost always find them on the enamel cloth above the bees, and very often sees them going into the entrance of the hives. "Please give name and your opinion of their object in visiting the hives. I shall be glad to send you more if you wish them for experiment for your cabinet, or for the college."

This beetle is *Euphoria sepulchralis, Fab.* It is half an inch long, and is dark brown, with dashes of white on its back. I have it from Maryland, District of Columbia, Georgia, Florida, and Texas. Thus we see that it is widely distributed in the South. We have two of the same genus north, *E. inda* and *E. melancholica.* The latter looks very much like this one, except that it is a little larger. Ours as grubs live in the earth, and feed on roots of

vegetables; and as mature beetles, both feed on ripe fruit like apples, peaches, and on soft green corn. This gives a pretty decided hint as to the attraction which the bee-hive has for this Southern species. I think that, without doubt, they have sampled Dr. Hunt's honey, and, finding it quite to their taste, they help themselves as inclination prompts. I hope Dr. Hunt and others will examine closely and see if this is not so. If it is a fruitless search in the hives, try some in a box with a glass cover, in which a small piece of honey in comb is placed, or some candied honey, and see if they do not prove my conjecture true. Our *E. inda* flies much like a bumble-bee, and is easily mistaken, when on the wing, for one. I am very glad to receive insects from Dr. H. and others.

A. J. COOK.

Agricultural College, Mich., May 10.

Friend Cook, I am very glad to have you take this matter up. At different conventions it has been urged that the course you propose would certainly result in tempting people to tell lies. Now, there may be something in that; but, notwithstanding, I would have it exactly as you say. It has often been urged that our rules in regard to the use of tobacco in our establishment and on our grounds would result in inducing boys to become hypocrites. Perhaps it does now and then; but I think the good the rules do, far overbalances this occasional evil. I feel satisfied that the original purpose of county fairs was to encourage improved farming, and improvements in all rural industries. If the exhibitor does not bring the product of his own handiwork, what does it amount to? In our neighborhood it is quite fashionable for boys to borrow choice specimens of poultry from those who have not time to make the exhibits and carry off the premiums. It is surely all wrong. Let the judges make careful inquiry, and ascertain whether the exhibitors are residents of the county, and whether they are men of character. A little inquiry will easily determine. Then this fashion of going about from fair to fair, and getting a premium on the same article, will be done away with. Of course, I allude to rural products. Those who wish to advertise goods they have for sale, are, of course, privileged to get said goods in any way they choose; but in competing for premiums on the products of the soil, it seems to me none but the producer should have a premium.

Your experience is like my own in regard to samples of honey sent in, purporting to be spurious. I think that, in every case, I have pronounced them genuine. Those who are looking out for fraud of this kind, fail to consider that bees often gather natural honey of a very poor quality.

BEES IN THE AXTELL APIARY.

FEEDING SORGHUM IN OPEN-AIR FEEDERS.

THIS afternoon I was out and worked six colonies of bees through, clipping the queens' wings and getting them in a condition that will need no more work until we go through to build up into strong colonies just before the honey harvest. It is almost too early to clip queens now; but I am weak, and can't work long at a time, and I want to commence now, so as to do all that I can of it myself, for several reasons. One is, I want the outdoor exercise and bee-stings, to build me up; and another reason, if *I* do it it will leave that much more time for Mr. Axtell to do something else that I can not do. Again, I think I can do it just a little more carefully than any one else. I believe many colonies are injured by careless handling. Perhaps I should not call it carelessness, but the lack of ability to do every little thing that needs to be done with that exactness that contributes to the welfare of the colony. And still another reason for wanting to work the hives myself is to see just how much stores they have, and how much and often we need to feed.

Those hives we put out in the middle of February because we could not keep so many in the cellar cool enough, are, some of them, nearly out of honey, but they have large quantities of brood and plenty of bees; while the remainder, carried out the latter part of March, have honey to last a month longer, and have less brood and fewer bees.

FEEDING BLACK SORGHUM MOLASSES.

We are feeding very black sorghum molasses that is two or three years old, and soured a little, and honey, half and half, melted together. Yesterday we fed a pail of each, and four of water stirred together — six pailfuls to 136 colonies. Before night they had taken it all up. It should be just thin enough so that the bees will fill themselves and fly home without crawling off upon the grass to clean themselves off first, which they will do if too thick. We shall gradually take away the honey, though I think they will not take such black molasses without some honey or sugar. The better the molasses, the less honey or sugar is needed to get them to take it. If they won't take it at first, or if we don't get in enough honey, we dilute some honey and sprinkle around over the feeders to start them. Our feeders are the large water-tight boxes we had to drain our extracted combs, in with thin boards nailed together just two bee-spaces apart, as floats in the boxes.

I examined each colony carefully, as we never fed such poor molasses before. It has been about three weeks since we began to feed. We fed once or twice a week. The bees look very thrifty and energetic, and the hives have all the brood they can care for, and are very full of bees for this time of year, with some drone brood. They have a little of their own honey left in the hives yet, and are gathering a little honey and pollen from the box-elders, and perhaps from some other source. I would not feed molasses, especially soured molasses, before bees fly in the spring; but as soon as they do fly freely, after the middle of April I doubt whether any sweet that we can get them to take, that is not really poisonous, would hurt them. Of course, it should not be fed while the supers are on, so that any of it could be stored in the sections, nor so much fed to the bees that they store and seal it up in their combs, so that it would be left over for winter stores.

From present appearance there will be but very few weak colonies by swarming time. I think we have never had bees to winter better; no colonies that I yet know of have died or dwindled that had a good queen in the fall.

White clover has wintered well, and is coming up in abundance everywhere. If we get sufficient rain we may hope for a good crop; but a good crop

means low prices, and each one should try to develop his own home market as much as possible. Try to trade it for every thing you buy, also exchange it for labor done. Try to trade it to every merchant in town nearest by; as often some one merchant will sell more than all the rest.

We had a large lot of cut-out honey, much more last fall than we ever had before, which we cut out and put into pans, which has sold more readily than in boxes. One groceryman wanted a panful every few days. He did not want more than two pans at a time, as it looked mussy from standing. I think the reason it went faster than in sections was, it was kept standing open, where a crate of sections has a lid on. MRS. L. C. AXTELL.

Roseville, Ill., Apr. 24.

Mrs. A., I am very glad of your brief testimonial in favor of bee-stings. If it is really true that getting stung does good, instead of harm, it is a strong argument in favor of bee-keeping.—I have fed poor molasses in just the way you mention, and I am well satisfied that you can feed with safety any thing the bees will take or can, be induced to take, if it is done when they fly freely, and the weather is warm; and I am sure that great quantities of brood can in this way, be secured from very cheap feed, when it is desirable.—Your suggestion in regard to getting rid of the honey around home, instead of crowding the commission houses, is an excellent one.—I am very glad to know that you have succeeded as we have, in disposing of cut-out honey in pans.

NON-SWARMING QUEENS.

DOOLITTLE FEELS HOPEFUL IN REGARD TO THE MATTER.

ON page 215 of the current volume of GLEANINGS I find an article from Mr. S. A. Shuck, in which he enters a protest against the teachings of Messrs. Alley, Doolittle, and others, who are giving advice to those who wish to increase their bees on the swarming plan, or by means which allow of increase being made without confining the bee-keeper to the apiary from 9 A. M. to 4 P. M. each day during the swarming season, he claiming that "the whole arrangement was unsatisfactory, and entirely too expensive." He then goes on to state that hundreds of bee-keepers don't want swarms, which I have not the least doubt is the case, yet it is equally certain that *hundreds* of bee-keepers *do* want swarms; and it was to these I was writing, and not to those who, like Mr. Shuck, do *not* want them. What Mr. Alley's object was in writing, I do not know; he can answer for himself. The point I wish to make right here is, that, in thinking of what should be written or what should not be written, we must take in the great multitude of bee-keepers as a whole, and not narrow ourselves down to just what *we* want, but go out in our thoughts, asking the question, "What will be the greatest good to the greatest number?" Failing to do this, we are not complying with the golden rule, nor using that broad charity for others which it is our privilege to use at all times, would we be making the world better for our having lived in it. I think that, in the past, I have given more matter on "how to prevent increase," and save to others the providing to themselves with those "hundreds of dollars' worth of empty hives," than I have on the different modes of increase; for, on the whole, I am in favor of running an apiary on the plan of as little increase as possible; yet while I now so feel, I have not forgotten the time when I was so anxious for natural increase that I lay awake nights planning how it might be obtained.

Mr. Shuck next strikes some hard blows at queen-breeders for "diffusing the swarming mania" throughout the country. While I very much doubt there being any ground, only a mistaken one, for his wholesale slaughter of queen-breeders, yet this brings me to the main point I wish to make in this article; which is, Is it possible to breed out of our bees the disposition to swarm? I have always said that it is not, nor do I now believe it entirely possible; yet some things have come under my observation of late, that have modified my opinion to a considerable extent. I had thought not to say any thing in the matter till I knew more about it; but I have concluded that it will be better to speak of it now, so that others may try with me to see if perfection can not be reached sooner; for, "In a multitude of counselors there is safety." All who have read my book on queen-rearing will remember that, in 1884, I adopted a different plan of rearing queens than that usually adopted by those sending queens out for market. All who have had experience in the matter, also know that the best of queens are reared in case of two queens in a hive, or, in other words, where a young queen is reared and fertilized from the same hive which has an old and laying queen in it at the time when this young one is reared. This is a fact which none will dispute; but the point to be arrived at is, Are queens thus reared less likely to swarm than are those reared under the swarming impulse? The method I adopted for rearing queens in 1884 was nearly the same as that used by the bees where two laying queens are tolerated in a hive at the same time, as the queens are reared above a queen-excluding honey-board when the old queen is doing full duty below, the colony not having the least disposition to swarm while the queens are being reared; yet the most of my queens are reared during the last half of July and the month of August, at which time very few if any swarms issue with me.

With the year 1887 I began to notice that I was not having nearly as many swarms as usual; while during 1888, only about half of my old colonies showed any desire to swarm. During 1889, less than half of the old colonies swarmed, while only one showed a desire to cast an after-swarm, the queen-cells in all others being cut as soon as the first young queen hatched, without any attention to them on my part. All the older readers of GLEANINGS will remember how that, during the seventies, I had excessive swarming, one season having above 350 swarms from less than 70 colonies in the spring. Swarm they would in spite of all I could do, so that it was nothing unusual for me to have from five to ten swarms in the air at once, while in one case I had fourteen all clustered together in a hedge fence. As I go back to those days in memory, it certainly does seem that I have made progress along the non-swarming line, and it certainly does look as if the mode of rearing the queens may have had something to do with it. To be sure, the seasons of 1888-'9 were not good ones for honey, which may have had something to do with the matter; yet the season when the greatest

number of swarms issued was not a good one by any means, only about half a crop of honey being obtained. I shall look more closely into the matter the coming season, and I wish all who raise queens entirely above a queen-excluding honey-board would test the thing also, and so be helping to solve the problem, that a definite conclusion may be reached as speedily as possible. Why I say "entirely," as above, is, that some advise having the cells started by colonies having the swarming impulse, and, after they are started, place them above a queen-excluder for completion. Of course, this would not be entirely along the line we are working on, consequently would not be likely to be as perfect as to results.

I see on page 318 that the editor interprets that portion of my article in the May 1st No. of GLEANINGS, where I speak of policy, as applying or intended to apply to others. I had no such thoughts; and if it does look a little different, let the reader be assured that Doolittle was the only one it was meant for. G. M. DOOLITTLE.

Borodino, N. Y.

Friend D., I am inclined to agree with you thus far. If we save our queens, and use them for breeders, that come from colonies that persistenly swarm excessively, our chances are greatly in favor of getting a strain of bees given to much swarming; and, of course, the reverse would follow. But it seems to me it can hardly be possible that we shall see a perceptible difference in so short a time as you mention. If, however, you take pains to select queens from colonies that do not swarm, I think quite likely you would see a remedy to the evil of excessive swarming, even in three or four years. Almost every apiary furnishes more or less colonies that give good yields of honey year after year, without any swarming. Let us try getting our queens from such colonies.

USING ESCAPE TENTS.

WILL THE REESE BEE-ESCAPE TAKE THEIR PLACE?

ON page 201 Mrs. Axtell speaks of the bees being so slow in getting out of the little mosquito-bar tents that the sections were spotted. I am not troubled in that way, and I think she is right in blaming the young bees. I smoke the bees pretty well before taking off the super. This does not drive them all out by any means, but I think the young bees are pretty prompt to go down when exposed to the smoke and the light. If the super is taken off without giving the bees any time to go down, there may be in it young bees which have never flown, and such bees would be a long time about leaving the only home they know of. The Reese bee-escape, in some one of its forms, has the advantage that no bees need be driven out before applying the escape; and for home use I think it is ahead. For out-apiaries the little tents are ahead, for the bees can be got out of the supers in less time.

CAGING QUEENS.

The article of Mr. Gill, on page 203, and the comments thereon, prompt me to advise against trying the plan of caging on too large a scale, till you find whether it is the best thing in your case. I am obliged to confess that, with me, it has not as yet worked out as well in practice as in theory. I think I can prove very conclusively by argument that there is a loss in raising bees at certain times; and yet, somehow, when the thing is put into actual practice the proof is not so clear. Indeed, to make a fuller confession, I believe if I had never tried to prevent swarming I should be better off today. Still, I am not ready to give up trying. But I am afraid that in spite of all my theories, the colonies wherein are left, all the time, laying queens, will persist in doing better work than those which are prevented from raising useless consumers. It may be, that I shall never get a satisfactory answer; but to me this question is a very interesting one: How can the desire to swarm be prevented without interfering with the queen's laying?

AMES' DOUBLE TOP-BAR.

Comparing this with the single thick bar, it has the advantage of the space for winter passage, and it can be applied to frames already in use. For new frames it will have no advantage but the winter passage, and will have the disadvantage of being more difficult to make and to put together, and not so solidly square. I think there may be another advantage in the double bar; and that is, that a queen may be less likely to go up. Baldridge's double bar, on page 205, is much the same thing. But if the space in the double bar is filled up with brace-combs I suspect the queen will go above more readily than over a solid bar. And the bees will fill the space with brace-combs just as surely as when a honey-board is used, if all dimensions are the same. Baldridge's ¼-inch space may make the difference, and Ames' 1⅛ width may also be effective. If, by having the right-sized space, or the right width and spacing, the double bar is found better than the single one, could we not retain the advantages of both by making a solid top-bar, and then running a saw-kerf through the middle of the top-bar, leaving the middle and the two ends solid?

HOW TO CALCULATE SPACING.

I want to call attention to a mistake that is somewhat common—that of dividing the inside width of a hive into as many spaces as there are combs, to find how far the combs are from center to center. An illustration may be found on page 137 in the letter of T. K. Massie. He figures that, when ten frames are in a Simplicity hive (which is 14¼ inches wide), the frames are 1$\frac{17}{40}$ from center to center. That is correct, *if* the outside frame at one side touches the side of the hive. That is, he has simply divided the 14¼ inches into ten parts, whereas there are ten top-bars and *eleven* spaces. Take ten times ⅞ for the ten top-bars, out of the 14¼ inches, and you have 5½ inches left for the eleven spaces, or ½ inch for each space. Now add ½ and ⅞, and you have 1⅜ as the distance from center to center of the frames in the ten-frame Simplicity hive, just as stated in the A B C. If 11 frames are used, the distance from center to center will be 1$\frac{29}{40}$ instead of 1$\frac{13}{40}$. This is counting ⅞ as the width of the top-bar. There will be a shade of difference if the top-bar differs. C. C. MILLER.

Marengo, Ill., April 15.

Well, doctor, I confess I had forgotten that the ten-frame Langstroth hive does space the frames 1⅜—that is, even though I put it so in the A B C, in our recent discussions I had somehow forgotten it. Isn't it refreshing to know that father Langstroth decided so many of these things with so much wisdom years ago? After all our

ramblings and new inventions, every little while we have to come back again to Langstroth. In regard to double top-bars, see editorial in our previous issue, page 389.

RAMBLE NO. 24.

IN MONTGOMERY CO., N. Y.

EARLY in December last, the Rambler dropped quietly off the West Shore train at Fort Plain, Montgomery Co., N. Y., and found that Sprout Brook, the home of the Van Deusens, of flat-bottom-foundation fame, was eight miles away. Mud was the chief staple on the surface of the earth then, and we hesitated to embark by stage, and travel so far inland. We were, however, in search of things new and novel; and though the roads were as bad as any we ever saw, we do not regret our trip.

Sprout Brook is a charming little village with a church, a store or two, and a hotel. Nearly a mile from the village lives Mr. J. Van Deusen and his sons J. A., O. J., and C. C. The homes of the Van Deusens and their factory are located in a flat-bottomed valley, and form a very picturesque little village as you look down upon it from the hill. A stream winds its way slowly along through this valley, and years ago the water-power here was utilized to run a woolen-factory. But since the advent of improved bee culture, the woolen machinery has been taken out and flat-bottom-foundation machinery put in. Like all country streams, the water fails during dry seasons, and an engine has been added to keep the wheels of business running at such times.

The Rambler's call was made at an unfortunate time, as the elder Van Deusen had just buried his wife, and was that day from home. C. C. was confined to his bed by a severe sickness; and as he was the apiarist of the establishment, our bee-talk with the others was of short duration.

C. C. has charge of about 300 colonies, and he finds that the highest yields are realized when only 40 colonies are located in a given field. Basswood is not abundant, but clover and kindred flowers give that Mohawk and Cherry Valley honey, which is hardly surpassed by that produced in any other locality in the country. Cellar wintering is practiced by nearly all bee-keepers in this portion of the State, with usually good results. Flat-bottom foundation is, however, the great specialty, and is manufactured in a large building. J. Van Deusen and two of the sons devote their attention to this work.

The venerable and pleasant face of J. Van Deusen is well known at our conventions, and is always supplemented with a sample of beautiful flat-bottomed foundation in his hand. His position in the firm is to work up trade, attend to correspondence, and take in the cash.

On the first floor of the factory is an engine, saw-tables, planers, etc., used for the manufacture of packing-boxes for the foundation, which is manufactured in the upper story. Flat-bottomed foundation is a patented article, but it seems that patent-laws are not strong enough to protect the manufacturers, and great secrecy environs the second floor of the factory, which is rigidly closed against visitors, and especially against ramblers. The Van Deusens, of course, claim to make the best foundation in the world, and advocate the idea that any foundation that runs less than 12 square feet to the pound, and is not flat-bottomed, is not fit for comb honey. They also lay the broad claim that it is worked out quicker than any other foundation made. Their method of cleansing the wax makes it cleaner than any other manufacturers can possibly get it; but we shall have to take Bro. Van Deusen's word for it, for their process is a secret.

For a lubricant, lye, starch, soap, etc., were vigorously condemned, and pronounced detrimental to the production of a good article. Their lubricant is as pure as the breath of an angel, and is also just as secret. Theirs are the only rolls that can manufacture wired foundation. As to how it is done is also—a secret!

Foundation can be made faster than by any other process. No visitor, however, is allowed to see the process—it is a secret! The fact, however, that foundation could be made so very fast, gave the Rambler a great desire to compare the two systems of manufacture—the secret one of the Van Deusens and the free-to-all, broad-minded system of the Dadants, who make over 30 tons per year. So we ventured a question to that effect.

"Oh, yes!" says Bro. Van D., with his blandest smile; "that reminds me of a story Capt. Hetherington told me the other day. He had a pile of wood, and employed a laboring man to saw it, supposing he had enough to keep the man busy all day. About noon, the man, whom we will call Sam, came around and reported the pile sawed. Capt. H. could hardly believe Sam, and went to see for himself. 'Why,' said Sam, 'if you want me to work all day, get a pile of wood. I want no little pile like that!' 'Well, Sam, how big a pile shall I get you?' 'Oh!' said Sam, 'get a big pile—a great big one.' 'But, how big—how many cords? what do you call a great big pile?' 'Why, Capt. H., if you want to see me everlastingly work, just get an *all-fired* big pile.' Well, Mr. Rambler, that's just the size of the pile of flat-bottom foundation we manufacture."

Silence fell upon us for the space of a minute. We realized that we had hit another secret square on the head.

There was one point, however, upon which there was no secret. This was a desire to sell this secret flat-bottom foundation, either by the pound or by the ton. The Rambler was inclined to make a bargain for a few hundred pounds, but just then the stage arrived, and we bade good-

THE GENESIS OF FLAT-BOTTOMED FOUNDATION.

by to the senior Van D., and were again behind tired horses and on bad roads. The Rambler's dreams troubled him again, and the very genesis of flat-bottom foundation came up before him, and would not down until the pencil made the vision perma-

nent. He hopes no secrets are divulged thereby, for to tell secrets or to burglarize is not the forte of the RAMBLER.

Friend R., I am afraid that you trespassed a little on the good nature of our Van Deusen friends. I am somewhat acquainted with the father; and, as you say, I have found him a most pleasant and genial man. Most of us have our peculiarities and eccentricities, and our Van Deusen friends are no exception. While I should not quite agree with them in regard to the importance of keeping their discoveries secret, I think we can respect their wishes in this matter, especially when they produce so nice an article of foundation, and at a reasonable price. With their machinery they can doubtless make a very great quantity in a year if called for; but perhaps they could not work at a much lower price and still keep up the quality. We have been selling more or less of their product for several years past. They not only send out a beautiful, uniform quality of wax, but they will make sheets two feet wide or more, and make it just as thin, or thinner, than we roll our narrowest strips. I have been told that their rolls are made of brass, and of large size, so as to allow of no springing in the center. Will our good friend Capt. Hetherington tell his man Sam that there is a good opening for just such a chap as he describes, in our own neighborhood?

A BEGINNER'S EXPERIENCE.

DOWN AT THE FEET OF THE LADDER; FALLEN PRIDE.

Dear Mr. Root:—I am down at the "feet" of the ladder again, in the bee-business. Last fall I got a handsome, little, select tested Italian queen of you, and she did nobly. I placed great store by her, and anticipated the busy brood which she would turn out this coming summer. I put three nice swarms away in the cellar, to winter; and when anybody said "bees," I would give him a cordial invitation to see mine by candlelight. Alas for human expectations! They tumble about one's ears daily, and we build only to see our fabrics fall in shapeless ruin, so often that one wonders at the fallibility of all earthly things, and grows skeptical in contemplating the utter depravity of inanimate objects.

In February, contrary to all precedent and the laws in such cases made and provided, we had a warm spell right up here in the Rockies, where it is always supposed that winter lasts 9 months, and the other three are late in the fall. A huge snow-drift had made it necessary to sink a shaft to find the cellar-door, to fish out potatoes, and, incidentally, "to see how the bees were doing." The warm spell cleared the ground of snow, all except the deep drifts, and my cellar got too warm. The moisture settled in huge drops, all over the combs, and every thing molded; and one day, when I had managed to get that refractory cellar-door open, I found, to my amazement, two of the swarms entirely dead. I hoisted the other one out, and set it in a sheltered nook, and sat down to contemplate the spectacle of about half a bushel of dead bees, and my lovely little queen, beyond the reach of mortal aid. Too much care, too much solicitude to have them warm and comfortable like some pet horse or cow, had done the work. Better have left them out to endure the rigors of a Rocky Mountain winter than this coseting and consequent death. It taught me a whole lot—those brief moments of sad contemplation, and I said, "Whatever I do in future, I intend to see that you don't get too *warm*."

I am now just where I started last spring—about a quart of bees, and a queen to come from the Home of the Honey-bees, to build up my ruined fortunes. But, in the language of Mrs. Collins, of Chapman, Neb., "I am going to succeed, if I have sense enough." We look for a wet season, and, consequently, plenty of grass, and flowers in profusion. It would do your soul good to see this country during a wet season. The ground is carpeted with flowers, and grass, so green and inviting, against the background of sage brush. Commend me to "Jotham's wife." I like her sentiments. Man should not be measured but by his worth to his fellow-man, and I respect and esteem the man who grooms horses, or the girl who waits or bakes or scrubs far more, often, than I do the people for whom she labors. The bane of this world is selfishness. I used to pride myself on the uprightness of my character and conduct, and point to my career as *so much* better than my neighbors'. Something wrought a change—I won't say what—and I began a microscopic examination of self. I found out that my idol (myself) had feet of clay, and I took a hammer (metaphorically), and smashed it to smithereens. I found myself to be one of the most captious, selfish mortals living. I found that I exacted from my family the best seat, the choicest morsels, and the best of every thing, all of which I took with the utmost self-complacency without a thought or a care for other people's comfort, where mine was concerned. I did not realize all this in a minute nor a day; but when I *did* come to see myself in a proper light, there was any thing but pleasure in contemplating the spectacle. "What am I, that I should demand or accept these things of my family, or any one else?" thought I, in the bitterness of fallen pride, over a cherished character, so much better than my neighbors'. I saw plainly, that, in nine out of ten instances, I wasn't really half as good as men whom I had looked upon with contempt. At *this* time I do not allow my wife or any of my children to vacate a seat or surrender a paper to me until they have no further use for either. I do not think that I am doing right, if I let any one inconvenience himself in the least for my sake; but, on the other hand, I am trying to learn to render, without recompense, all the service to humanity that lies in my power. I haven't reached a point yet when I am fit to have a pair of wings grafted on, but I am not the selfish, exacting, disagreeable brute that I used to be. If a man will just turn the telescope upon himself, instead of upon his neighbors and the world generally, he will find it a mighty interesting—if, perhaps, unpleasant—study for a while, and then he will feel a good deal like going out and hiring a six-footer to kick him for about six consecutive hours.

J. F. CRAWFORD.

Saratoga, Wyoming, Apr. 22.

I am sure, friend C., we all sympathize with you deeply in the loss of your last colony, away up in the Rockies. Don't you think you had better follow our plan of wintering bees right in the open air?—I felt

deeply interested in your account of your fighting the battle in putting down self; but I confess that I felt somewhat disappointed that you did not make some allusion to Him who lived a human life, and "pleased not himself." How can you help thinking of those words, "Whoso will be chief among you, let him be your servant"?

FROM THE LAND OF THE PHARAOHS.

FRIEND BALDENSPERGER INFRINGES UPON MERRYBANKS' WOODEN-PAIL BEE-HIVE.

THE "haj" Mustapha, as the title "haj" is called, was a devout man, and had performed his pilgrimage to Mecca, on return from which the pilgrim (that is the literal translation of the word) receives the name of "pilgrim," or "haj," and is then expected to perform his five prayers daily. An omitted prayer may be recalled by saying two prayers next day at the time missed. The five prayers are to be said at daybreak, midday, four o'clock, sunset, and about 9 P. M., always facing Mecca while saying the prayers. My host declined saying his prayers that day; as he thought it would keep me too long, he would do it next day.

He then went on describing the way he makes his hives. I should certainly note down every thing, as this is a very important question in apiculture. The wooden model is five spans long (46 inches), being 8 inches in diameter. The mud is brought, mixed with one-third of fresh horse manure. After being well worked it is left to leaven for a few days. A very pliable but strong mat made of spliced reed is put down on the floor, on which dry and finely pounded manure is strewn. The above-named composition is now fully besmeared on this stout reed mat, and again dry manure is strewn on. The round model is now laid down on the composition, and by means of the mat, or outer inclosure, the mud is put round the model, and put upright, when the inner model is taken out. With an empty jug having just the same diameter as the inside of the hive, he rubs the inside up and down till it is smooth. The mat is now carefully taken away, and the finished but delicate hive is put away to dry in the sun. When wanted for bees, two round covers, always in readiness, are taken; and after having put in the five above-named combs, the swarm is put in, and is pretty sure to thrive, as swarms are admitted only in the flowery season. The hives are now laid side by side; and before a second layer is put on, the hollow space formed by the two hives is filled with sand and fine manure. When the second layer of hives is put on, the holes formed below the hives are stuffed with hemp, and all the surface is besmeared, making it mouse and moth proof.

In cutting out the honey he is very careful not to cut into the comb lest the hive get soiled inside; besides, the refuse pieces must, together with the honey, raise the wax-moth. He always leaves five combs in each hive, thus enabling the bees to store away, besides what is left, food for the flowerless season; for of a winter, hardly a mention can be made. He operates on his hundreds of hives without using any protection for his hands. He does not know that people in Europe and America dread the very name of Egyptian bees, neither does he know that any have been tried in those countries, and probably does not know that there is any difference in temperament or in color. In the middle of August, at the overflowing of the Nile, the hornets appear, in very small numbers; but by and by they increase to thousands. He boils 2 lbs. of honey and 1 lb. of arsenic; and when well mixed he takes a number of feathers, besmeared with this mixture, and sticks them in the hornets' nests. He does the same thing round about all the villages where he has any business transaction, putting also some in plates in front of the apiaries, thus killing numbers.

By this time dinner was ready. My host and myself were seated on an elevated place in the court. It being a cloudy day we were in the open air. On a copper tray were presented, on different dishes—eggs, olives, dates, and omelet bread. We used our hands, as is the custom, while a man kept driving away the flies from ourselves and food. Before eating we had to say, "In the name of God the merciful;" after food, "Thanks to God." After having thanked my bee-friend in the most courteous manner, I rode home toward Cairo on donkey-back, as I came here, very glad to have seen Egypt still flourishing. PH. J. BALDENSPERGER.

Jaffa, Syria, April 3.

Why, friend B., I just held my breath when you spoke about those cylindrical hives made of clay; and I confess I felt greatly disappointed because you did not tell us more particularly how he cuts those round combs out of the cylinders, and how he puts them back again, or doesn't he ever put them back? and is the surplus honey stored in round cakes so it can be cut into pieces like pie, as pictured in our little book, Merrybanks and his Neighbor? I have always felt a little hurt to think my brilliant idea of using water-pails for bee-hives has met with so little favor, not only in our own country, but even in foreign lands. Now, if I ever go to Egypt I shall greatly enjoy their custom of asking a blessing before they partake of food, and giving thanks afterward.

AMONG THE MANGROVE ISLANDS.

EXPERIENCE IN MOVING BEES ON THE WATER.

TWO or three years ago my friend O. O. Poppleton suggested to me the idea of moving our bees to the coast, twenty-five miles from home, to get the benefit of the mangrove honey which comes after the honey season is over in the interior. With many doubts in regard to the prospective profits of the venture, we finally decided to make the trial during the past season. In the first place we had to build new hives, as the old ones were not safe to move bees in. The common pine lumber of Florida is very heavy, so we went to the extra expense of getting cypress lumber, which makes very light hives—quite an important consideration where they are moved so far. The mangrove generally blossoms from the last half of June to the fore part of August. But the season last summer was late, so that we did not move the bees till about the first of July, and that proved to be early. When we finished extracting the last of May, we left a pretty good supply of honey. This being palmetto honey it was of very good quality; and when we were ready to move the bees we took about 600 lbs. from 35 colonies, the number moved. Two frames of

honey were left in each hive. The frames were fastened at top and bottom, and what we thought would be ample screens for air were given them; honey-boards were screwed down to prevent bees from getting out, and just at night entrances were closed with wire screen. Then my son, Oscar B. (aged 19), commenced hauling them to the depot, where we had engaged a car. He worked till an hour after midnight, hauling a part about two miles, and the rest from the home apiary, nearly ¾ of a mile. In the morning two more loads had to be hauled; but we had all ready for the train, which took us safely to Smyrna by 11 A. M. We had engaged a flat-boat, or lighter, as it is called here, of friend J. Y. Detwiler, to take the bees about three miles south to the locality where we had decided to keep them. There is a strong tide in the Hillsboro River, and we had to wait till about 6 o'clock before we could have the tide with us. Then Oscar fastened our own light row-boat to the bow of the lighter, and we started, Oscar rowing as hard as he could in order to make as much speed as possible; yet darkness overtook us some time before we reached our landing. When within 80 rods of our destination the lighter ran into some oyster-bars in the darkness, and we left it while we spent half an hour in hunting for the wharf where we were to land. Then another half-hour was spent in working the lighter among a net-work of oyster-beds; and when we reached our wharf we were two tired and somewhat disgusted individuals. There was no profane language used, I believe, as neither of us had ever had any practice in that line; but I fear that we felt in a frame of mind such as some of our friends do when they use pretty strong language. Not a light was to be seen.

A NIGHT WITH MOSQUITOES AND SAND-FLIES.

Our friends had retired for the night. The path to the house was through a hummock little known to us, and it was about 60 rods to the house. Oscar said he could do no more, and, rather than try to find the road and then awaken our friends, he lay down on the wharf and slept till morning. After looking to the bees, and bailing out the lighter, I followed suit by making up a bed on top of some bee-hives. Fortunately the night was clear. We had plenty of bedding, a tent, etc., and were prepared for camping out; but the mosquitoes and sand-flies were on hand and ready for business, thousands of them. We had bee-veils over our faces, and our hands covered. We finally had to cover our faces with our blankets, all we could, and leave room to breathe. It was nearly midnight before I slept. By sunrise we had eaten our breakfast, and spent the entire day in getting the bees to land.

PURE ITALIANS BETTER FOR MOVING.

We found them all right except one colony evidently smothered, and a few bees dead in a few hives. I noticed that the pure Italians lost less than the dark hybrids. We afterward moved one colony of Italians over 25 miles in a wagon, and they made very little disturbance. The dark bees seem to get more excited, and crowd for the entrance and ventilating screen, thus shutting off the supply of air.

A POOR YIELD FROM MANGROVE.

The mangrove did not yield much honey before the 10th of July, and then the flow was not constant. It seemed to do better after a good shower of rain, while a few days of hot dry weather would be a sure indication of idleness in the apiary. We secured only about 600 lbs. of honey, and the last of that was undoubtedly mixed with cabbage-palmetto honey, which is also a very light-colored honey, and of fine flavor. Every bee-keeper with whom I talked upon the subject said it was one of the poorest seasons for honey ever known. Some thought that the yield is always light when the mangrove-blossoms are so late in the season. In counting the profits of our experiment, the 600 lbs. of palmetto honey taken before moving would have to be added to the 600 of mangrove, as we could not have extracted the palmetto honey had the bees been left at home; 1200 lbs. at 7 cents, what we have been getting for most of our honey in our home market, would give $84.00. Less cash expense of moving, $24.00, would leave about $60 for our labor —not very high wages, certainly. Large quantities of honey could not be disposed of at 7 cents per pound. One bee-keeper shipped several barrels to the North, and realized only 4 cts. Another sold 8 or 10 barrels at home for 5 cents. We left the bees at the coast till December. The last time we extracted, which was during the first half of August, we left plenty of honey in the hives. Some honey was to be had from various flowers, but not enough for the needs of daily consumption; and by the last of October there was very little left. It looked as though the bees would have to be fed or starve. Oscar and I went over to look after them about the first of November, and found them storing

HONEY FROM SAW-PALMETTO BERRIES.

This product is more like a poor quality of syrup than honey; but the bees seemed to thrive on it. We concluded to let them work away while we took a two weeks' trip 50 or 60 miles north on the Halifax River, and Smith's Bulow, and Tamaka Creeks, camping out and adding to our collections in botany and conchology. On our return we found the bees still storing from the palmetto-berries, so we left them a few weeks longer. When we moved them home in December the hives were quite heavy with honey. I am satisfied that, had it not been for the palmetto-berries, we should either have been obliged to feed the bees for a long time, or let them starve. The palmetto is said not to yield a crop of berries every year.

WOOD-ANTS.

We lost two colonies from robbing, and two from attacks of the large wood-ant that is sometimes so destructive to bees near the coast. Had we been with the bees we could have saved those four colonies. The ants can be destroyed by following them to their hiding-places. Those that did the mischief for us first made their nests in the top of the hives; and when they got pretty strong they commenced killing, and, I think, eating the bees. I saved one colony they had commenced on. In one corner of the hive there was about a pint of dead bees with wings torn off, and the bees torn to pieces. The rest of the bees were on the combs all right, and I was satisfied that the ants were eating a few every day. I brushed the ants out of the hive, and a flock of chickens snapped them up as fast as they struck the ground. They made no more trouble in that hive. The hives were set on large spikes, and the spikes in cans of water; but the cans got empty, and the ants found their way into the hives. They work only at night, remaining hid during the day.

On the whole it is hard telling whether our experiment paid us in any way except in the experience gained or not. I have no doubt that, in a good

season, we should have felt well paid for our trouble.

MOVING BEES FROM THE NORTH TO FLORIDA NOT RECOMMENDED.

Some parties have talked of moving bees from the North to Florida, to get our winter flow of honey, and especially orange honey. I do not know whether any one has done so or not; but I will venture the opinion that they will do it but once.

PRESENT OUTLOOK FOR FLORIDA NOT ENCOURAGING.

The present honey season in Florida is likely to be a very disastrous one. The winter was very warm and dry, and we got no honey. The 1st day of March we had a good rain, followed the next night by the first frost of the season. In two weeks came another frost that did great damage throughout the entire South. Thousands of acres of tomatoes and other tender plants just ready for market were cut to the ground. In many places young orange-trees were killed to the ground, and orange and many other honey-yielding blossoms were destroyed, leaving nothing for the bees. The winter had been so warm that most things had started to grow. The consequence will be, that our Northern friends will not have so many oranges from Florida the coming season. In the interior, bees will probably have to be fed during the whole season or else starve. Saw-palmetto generally blossoms about May, but it throws out its long panicles of buds long before that time, and most of them were killed where they were not protected by the leaves. We have been feeding our bees up to the present time. I have not learned what the prospect is for mangrove honey. GEO. W. WEBSTER.

Florida, May 10.

DR. C. C. MILLER.

BY THE HALF-TONE PROCESS.

A short time ago we received information that Mrs. Miller did not like the wood engraving of her husband, Dr. C. C. Miller, in the A B C of Bee Culture. The cut was very good, but it was not exactly natural around the eyes and mouth. We accordingly have had another one made by the half-tone process; hence I take pleasure in again introducing our old friend and correspondent, Dr. C. C. Miller, of Marengo, Ill.

It is almost unnecessary to tell who the doctor is, or what claims he has on the hearts of bee-keepers. We can say of him as we can say of very few bee-keepers, he has no enemies. In fact, it would be a very hard matter to quarrel with him or make him talk back. He sometimes, like Dr. Mason, has a blunt way of talking in conventions, for the sake of a joke.

There are several men who always help materially in making a good convention. Not mentioning the others, I will say Dr. Miller is one of them. I remember, at the International, at Brantford, everybody inquired, "Where is Dr. Miller?" or, "We need *him*."

We hold Dr. Miller, here at the Home of the Honey-bees, in very high esteem, not only as a personal friend, but for his opinions upon any phase of the subject of bee culture. He has twice revised the A B C book, and twice added his comments in the back portion of the work. In fact, he is consulted in regard to this, that, or the other improvement in hives and other appurtenances. Very often, when a new thing comes up that I think is going to displace every thing else, I write to Dr. Miller, and ask him to find all the fault he an cwith it.

DR. C. C. MILLER.

And his criticism is generally heeded. Our correspondence in GLEANINGS shows that we do not always agree; but the fact that he is so often consulted is somewhat of a measure of the value we place upon what he says.

If some of our new subscribers want to know when and where he was born, whether he is short or tall, broad or slim, I would refer them to a short biographical sketch by the writer, in the A B C of Bee Culture.

ERNEST.

CALIFORNIA.

BACKWARD SPRING.

Bees have wintered well in this part of the country. No losses, except where they starve, and not many of them so far. The spring has been very unfavorable up to date. There have been but few days that bees gathered any honey. Rain, rain, rain, is the order of the day. Our spring was like yours last year. There were only two days when bees could work on apple-blossoms. In my apiary they are destroying the drone larvæ, and expelling the mature drones. The queens have slacked laying, yet I am feeding whenever bees can fly.

I fear that I shall not get bees enough to get much surplus, if this weather continues much longer. I am feeding sorghum, diluted to thin syrup, placing it about two rods from the hive. There is no fighting or robbing among the bees. S. L. CRAIG.

Oakland, Cal., May 14, 1890.

MANUM AND THE COMMISSION MEN.

HOW HE MANAGED TO SELL $4000 WORTH OF HONEY BEFORE BREAKFAST.

I HAVE seen articles in GLEANINGS from time to time on marketing honey. Several of your readers have given their experience and advice on this important subject, and it may not be out of place that I should give my experience with commission men. I have never been fully satisfied with the practice of sending my honey to be sold on commission. Though I have never, but once, been able to sell it outright, I have tried very hard to induce parties to get in the habit of buying honey as they do other farm produce. But they seem to be a little loth to do so, as they say honey is a luxury and not a staple article.

A few years ago I shipped my honey to a firm in Boston, known as Favor & Dudley, who then handled nearly all of our Vermont honey. While in Boston one day, looking after the sale of my honey, I chanced to pass a store, in front of which I saw several cases of my honey piled up to attract attention. I looked up to the sign over the door, which read, B. F. Southwick & Co.; and as I was looking at the honey, a fine-looking gentleman stepped out and smilingly saluted me with, "Good-morning, sir." This proved to be Mr. Robinson, one of the firm, who asked:

"Do you wish to buy honey, sir?" said he.

"No, sir; I was simply admiring it. Do you handle very much honey, Mr. R.?"

"Yes; we sold 50 cases of this brand last year, and this year we have so far bought 50 more, and hope to be able to sell 100 this season."

"Do you consider this brand as good as any?"

"Yes, we prefer it to any on the market. As it is put up in such nice, clean, and attractive packages, we sell it as a *fancy* article."

Here he opened a case, took out a section, and, holding it up, salesman fashion, he remarked:

"There, see how nice and clear it looks. Why, I tell you this is *fancy*, and it sells like hot cakes."

"You buy this honey outright, I suppose, Mr. R.?"

"Yes, we buy it of commission men; but we should be glad to handle all of this brand if we could arrange to do so."

"I see this is Vermont honey."

"Yes, it is; and, like Vermont butter, it stands at the head."

At this point I handed him my card.

"What! is this Mr. Manum? Are *you* the man that produced this honey?"

"Yes, sir, I suppose I am."

"Well, you are the very man we want to see. Please step into the office. Mr. Southwick, this is Mr. Manum, who produces such nice honey."

"Well, Mr. M., I am glad to meet you. We were speaking of you this morning, and wishing we might see you. Have you any more honey to sell? We should prefer to buy of the producer direct."

"Yes, sir, I have about 200 cases more."

"Oh! that is more than we wish to buy at *one* time; but we will take it on commission, and do the best we can for you."

"Well, gentlemen, I am here for the purpose of *selling* my honey. I do not like the commission business. I am sick of it, and surely I ought to be able to find some one in this great city who will buy so little as 200 cases."

"Mr. M., you had better consign it to us, and try us. We will do our best to please you. We are commission merchants, but we have never had a consignment of honey, though we should like to have you try us."

"Very well; then I will ship you what I have, on my return home."

This I did, and I was satisfied with the returns. I shipped them my entire crop the next year, though it was a light one—only four tons; but this seems to have set them up in the honey business, so that today B. F. Southwick & Co. are the leading honey merchants in Boston.

The following year I shipped them four tons early; and before I got the rest of my crop ready to ship, the old notion—of selling outright rather than placing it on commission—returned; and, being so strongly impressed that this was the true way for bee-keepers to do, I went to Boston with the determination to sell, if possible, to some party, and try to get them in the habit of buying rather than to take it on commission. So I called on my friends, B. F. S. & Co., for that purpose, but they talked very discouragingly. So I called on several other merchants, and in two days I succeeded in finding four parties who would buy six tons at a certain price—which was less than my price—but closed no trade with either of them. I returned to B. F. S. & Co., and made another desperate effort to sell them the remainder of my crop, which was now reduced to about 11 tons. I told them how I had found four men who would take six tons.

"What! do you propose to sell a portion of your honey, and then consign to us what you can't sell?"

"That is just it, Mr. Robinson. I shall either consign the rest to you or to some one else. But I want to sell you the entire lot; and now I will make you a proposition: That you come to Vermont with me and see the honey; and if you do not buy it I will pay your fare back, so that you will be out only $6.50. But if you buy the honey you shall pay your own expenses up and back. Your expenses while there will be nothing, if you can put up with such fare as my wife can offer you. You see, I am determined to induce you Boston fellows to buy our Vermont honey outright."

"Well, Mr. M., your offer is a fair one; but it is too large a lot for us to buy at once."

"Very well; then I will return home on the next train, and I will decide in a few days what to do with my honey."

An hour later, as I had just taken a seat in the car, and as the train was just moving out of the depot, I felt a heavy hand on my shoulder. Looking up, there stood Mr. R., so much out of breath that he could hardly speak; but he managed to say:

"Mr. M., I am going home with you to see that honey. After you left our store, Mr. S. and myself talked the matter over, and we decided that I should go up and see the honey, if I could catch the train, which you see I have just barely done. As I was never in Vermont, I thought it a good time to take a look at your Green Mountains.

As we came via the C. V. R. R., we had a long ride through New Hampshire; and when White River Junction was reached I told Mr. Robinson that we were in Vermont; and I wish, Mr. Root, that I had the ability to describe Mr. R.'s enthusiasm as we glided along up White River, with the Green Mountains on either hand looming up skyward, with a seeming desire to steal a kiss from the

flying clouds as they journeyed onward, paying their respects to the old mountains only by occasionally saluting them with a light shadow as they skipped over the bald heads of these gigantic and aged mountains. Suffice it to say, Mr. R. was wild with delight and admiration as we skipped along from bridge to bridge and curve to curve until we reached Bristol in the evening; and while Mrs. M. was preparing supper, Mr. R. inquired whether the honey was near the house, so he could see it that night. Although Mr. R. had been under excitement all day, and must have been very tired, his great energy and business habits would not permit him to retire without first taking a look at the honey. So, after satisfying our appetites I conducted him to the honey-room, at the rear of the house.

Although Mr. R. is a very shrewd and thorough business man, I very soon made up my mind that he would buy my honey before he left. The next morning he was up and in the honey-room by daylight. After doing a few chores—more to allow him to be by himself than for the chores themselves —I joined him just as the bell rang for breakfast.

"Good-morning, Mr. R. I see you are making some figures. Does it figure to suit you?"

"Well, yes; but can't you make your price half a cent less?"

"No, Mr. R., I have already given you half a cent on a pound, in order to induce you to buy the honey. You will see that, by giving you the half-cent which I have, and if there are 11 tons, you are getting $110 for your trouble in coming up here. But, our breakfast is ready; let us go in."

"How soon can you ship the honey?"

"I think we can get it ready in a week."

"Very well; then I will take it at your price, and send you a check for the amount on receipt of the honey. Well, Mrs. M., I have made a $4000 trade with your husband this morning, before breakfast."

"Have you bought the honey?"

"I have; and Mr. M. says I must stay a few days and help him to grade it."

"We shall be pleased to have you; and I dare say you will enjoy the business, while your advice may be beneficial to my husband in the matter of putting up honey in the most practical style to suit your market."

Breakfast over, we returned to the honey-room, where the help had arrived, and we commenced work; and after watching the various manipulations of the honey as it was being prepared for shipment, from the scraping of the sections to the crating and weighing, Mr. R. looked up to me with a smile, and said:

"Mr. Manum, I want to work a little at each part of this work, for the purpose of knowing how it is done."

"Very well; you may commence by scraping one clamp of sections, and you may occupy this girl's place while doing so. In the mean time I will find something else for her to do. But, first, she may teach you how to clean one section while I go and catch a few queens to fill an order received last night."

I had caught but one queen when I heard a great uproar and laughter in the honey-room. I will here state that Mr. R. has a very agreeable, lively, and cheerful nature, and he enjoys a good time as well as the next one, and especially a good joke, whether he is the victim or not. Upon hearing the uproar I hastened to the honey-house to learn its cause and to enjoy the sport myself. As I entered the room I found all the girls standing, and in a fit of laughter, as well as those from the other rooms. All were looking at Mr. R., who, it seems, had punched a hole in a section of honey with his finger; and while holding it up to decide what to do with the "leaky thing," as he termed it, he dropped it on the floor, and of course smashed it; and it was his looks of despair at his ill luck which caused the girls to laugh so heartily. He finished his clamp of sections, however, in a creditable manner, and disappeared for a time. Where he could have gone, no one knew; but he soon reappeared with a large package of choice candy, which he placed at the disposal of the girls, saying, at the same time, that the best way to close a girl's mouth was to sweeten it. This he did very effectually, for the girls did not again mention to him the broken section of honey, and he was at once considered the hero of the company.

Mr. Robinson progressed finely in the different branches of the work, until he was at last promoted to the delicate work of grading; and I found him perfectly at home in this work. His experience in selling honey had taught him how this should be done; and instead of being his tutor, I found myself his interested pupil, greatly to my advantage ever since.

After watching Mr. R. a few moments I asked him if he thought it was best to grade the No. 1 as close as he was doing. His answer was, "Yes, most assuredly;" and he remarked:

"Now, Mr. M., I want to impress upon your mind the importance of careful grading. For instance, you should always be careful to have every section in each grade be true to that grade. Never allow a single section of No. 2 to go in with No. 1, or No. 3 with No. 2, and so on; because if a single section of No. 2 is found in a crate marked No. 1, the whole crate will have to be sold as No. 2, notwithstanding it contains but one section of No. 2. This rule holds good with fruits, vegetables, and all kinds of goods. All should be true to name and grade. Honest goods will always sell and command the highest price. Therefore work for a reputation; and when once gained, strive to keep it, because a lost reputation is much harder to regain than to have kept it. Therefore be watchful, and send us honest goods, and I will guarantee that you will always be pleased with the result."

After spending two days with us, Mr. R. left for his home; and on taking his departure he declared that he had enjoyed himself exceedingly well; saying that he could now tell his customers all about the honey-business, as he had been where it was produced, and worked at the business with his own hands, and that he knew that it was strictly pure.

On taking his leave of the family, Mrs. M. presented him with a well-filled lunch-basket, saying to him that the contents of the basket might be acceptable to him before he reached home. This little gift, representing her motherly nature, made such an impression upon his mind that even to this day it seems to be one of the pleasantest remembrances of his first visit to Vermont; and to assure us of that fact, he has, every year since, forwarded us a well-filled box of choice goods from their large assortment, as a token of his appreciation of that lunch-basket, and his regards for the giver who has since gone to her long home.

Notwithstanding B. F. Southwick & Co. did well with the honey I sold them that year, I have never been able to sell them any since, owing to the fact that, since then, the price has been so fluctuating, and also that the bee-keepers of New England seem to prefer to consign their honey, or, at least, they do so without making any attempt to sell outright, and I have found it rather up-hill business to establish the custom above; hence I have been obliged to consign my honey each year since the year above referred to. Although Messrs. B. F. S. & Co. have, so far as I know, been square and honorable with me, and make quick returns, I should much prefer to sell my honey at home, and have it done with.

Bristol, Vt. A. E. MANUM.

Well done, old friend. Why, you will get able to write a book if you keep on at this rate. Now, there is one great moral in your very interesting story. It is this: There is nothing that helps a man to sell goods like being very conversant with the details of the commodity he is handling. And the emphatic injunction in regard to honest grading is a great truth. A reputation is much easier lost than gained, and much harder to be gained when lost than to have kept it.

RIPENING OF EXTRACTED HONEY.

ARTIFICIALLY RIPENED JUST AS GOOD AS THE HONEY RIPENED IN THE HIVE.

MR. HOLTERMANN, on page 87, says that the color of honey is probably affected by being stored in dark combs. Further on he tells us he leaves his honey intended for exhibition on the hive until a few days before such exhibition, and then extracts it. In this way, he says, he secures the ripest honey, and that "no one will admit that honey some time off the hive and out of the comb is of any better flavor than that just taken off; and further, that such honey is not affected as to color, if stored in white combs.

There are several mistakes in the above, I think. At least *one* man does admit and argue that honey may be improved off the hive, and, indeed, should be. I would call Mr. Holtermann's attention to my former article on page 48, Jan. 15. In addition I will add a few thoughts.

In his foot-note, the editor corroborates what I have quoted. He says that well-ripened honey is less liable to candy than that which is extracted before it is sealed. That the most thoroughly ripened honey is the last to candy, other things being equal, I agree. But to the idea that it must be extracted before it is ripened, I say emphatically, no. Last summer I extracted my first honey near the close of the wet spell we had in June. During that period, honey came in about as thin and rank as I ever tasted it. Nearly half of this honey was unsealed. I put it in lard-cans and stone jars, covered with cloth, and set them where the sun would pour in through the south window upon them, and left the honey to *cook*. In the fall this was among the thickest, richest honey I had, and the last to candy. And why should it not be so? If honey ripens by staying on the hive, what is it that does the work? What is the process of ripening honey, any way? Does it not consist in evaporating the water and intensifying the body of the honey? Is it not this concentration of the essential elements of honey that constitutes its richness? And if so in either case, are not the conditions essential to this ripening process as well secured in a warm dry honey-house as in the hive? I claim from experience that they are present to even a greater degree. I see no way out of this conclusion unless it be in the vague, improbable guess that some chemical change takes place in the hive. I do not say that honey will not ripen in the hive, but I do say that the essential conditions—heat and dryness—must be present. In other words, the hive must stand in the sun, and be as near proof against outside dampness as possible. Honey remaining on hives densely shaded keeps thin, and acquires that moldy flavor spoken of by the editor on page 49.

THE COLORING OF HONEY.

Now a word as to the coloring of honey. That honey standing long in old black combs will become dark, is no doubt true. But it will do the same thing in new combs. I have put two sections of honey in a dish, one of which was beautifully white, the other considerably travel-stained from remaining on the hive. When they were cut into, the honey in the travel-stained comb was perceptibly darker than that in the others. This, coupled with the fact that honey extracted from old combs, pretty soon after it is stored, is as light as any, seems to prove that honey will turn dark by standing in the hive, whether stored in black or white combs. Now, what is the cause of this? Can it be some mysterious chemical process that goes on there? Who can throw some light on the matter?

GEORGE F. ROBBINS.

Mechanicsburg, Ill., Feb. 3.

Friend R., how large are those stone jars? I can readily imagine that, if they held not to exceed a gallon apiece, and if set in a south window, without curtains, during the hot days of July and August, the honey would evaporate or ripen until it acquired any desired thickness. And is not this a hint as to the cheapest way we can ripen raw honey? Well-ripened honey is certainly a little darker than green raw honey. I have seen basswood honey almost as clear as spring water, and so thin that you could almost drink it like spring water. When thoroughly ripened, however, it was quite dark, comparatively.

PEDDLING HONEY.

EXTRACTED; PREVENTING GRANULATION A FAILURE.

MR. J. A. BUCHANAN'S article in GLEANINGS, March 1, has called forth a few thoughts in my mind which may be of interest to the producers and sellers of honey, or, more particularly, extracted honey. If we prevent honey from candying by sealing hot, or by mixing, what shall we say to those who have been taught that pure honey granulates, and impure honey does not? and when a visitor comes to your apiary, and sees your operations, how will you prevent his being confirmed in the idea now prevalent, that all honey is bogus? Preventing granulation by sealing hot has not worked satisfactorily with me. Some one wishes to see how the honey tastes. The sealing is not done perfectly, and then your honey granulates. Consumer, who thinks it should be clear, observes with a smile, "He got too much sugar in it that

time." The one who has kept "strained honey" in the house all winter, and knows it is natural for honey to granulate in cold weather, and those we have succeeded in educating, think that you have adulterated it. It will not do, generally, to rely on the groceryman to explain to the customer. Generally he is not asked to; and in time the story gets old, and he can not spare the time on an article that sells as slowly as honey does. As Mr. B. says, we bee-keepers must solve the problem ourselves. If I had an unlimited amount of time I could sell extracted honey for 10 cts. where comb honey sells at 12; and it need not be in liquid form either. Thinking that I must change from producing extracted to comb honey two years ago, I purchased some comb honey to peddle with my extracted granulated honey, and found, to my entire satisfaction, that the trouble in selling extracted honey at the price named was less than selling comb honey. I sold 5 lbs. of the former to one of the latter. When comb and extracted honey are placed in a store, generally the result is the reverse of the above. The groceryman gets tired of talk, and sells what is "called for." Now, how shall we solve the problem of selling extracted honey? for with me in this market it must be solved or given up. The groceryman does not succeed in disposing of any worth mentioning, in the granulated form, and the task of melting and sealing hot in small glasses, and remelting what granulates again, and keeping the groceryman supplied with it in attractive form, is too great a task where you have a large crop to market and take it to grocerymen in other towns.

Waverly, Ia., Mar. 11. J. B. COLTON.

Friend C., the honey business is full of contradictions, like almost every thing else. I know it does take a deal of talking. The best way to get rid of the talking, however, is to give your customers a real nice article; and when they call for more, give them a real nice article again.

THE HONEY MARKET OF BUFFALO.

HOW THE DEALERS THERE CALLED THE LIQUID ARTICLE "STRAINED," MANUFACTURED (?) COMB HONEY.

DURING March I was, owing to my mother's illness, suddenly called to Buffalo, N. Y., and remained there about two weeks. I took a room, and prepared my own breakfast and supper. You know a German is saving, and can live where other people starve. There is one thing I always feel breakfast is incomplete without, and that is honey. The entire year, when able, I like either extracted or comb honey for breakfast. So I ventured out, and at the grocers' made inquiries about extracted honey. The clerk or proprietor asked, "Do you mean strained honey?" and told me they had none. The remark led me to think whether it could be that, in the same country, and in so large a city as Buffalo, and within so short a distance of that great apicultural light, Dr. Mason, people did not know extracted from strained honey. I then and there determined to sift the matter thoroughly. I visited about fifteen stores, and in every case found they called it strained. I would say, "Have you comb honey?" and then would ask for "the other" kind, and in one way or another I led them to name the honey first, and the name given was always strained. In the largest grocery store (so far as I know) in Buffalo, in Yerxi's, they called it strained; and when the young man in attendance found out I kept bees, and knew honey, he asked me if the comb honey in their store was really genuine. I then read him your offer about the manufacture of comb honey, and the efforts of the American bee-journals to stamp out the erroneous idea that comb honey could be manufactured.

Surely a man can not attain to the greatest success in the sale of goods if he has no confidence in them; and surely in that large establishment on Main St., Buffalo, a man understanding his goods, and selecting them judiciously, could surprise the proprietor by the amount of sales which could be effected in comb and extracted honey alone; and, on the other hand, what an outlet would be secured for the bee-keeper's honey! The extracted honey shown by this store had been packed in a large packing-house. I will not say it was impure, but it was not good; and owing to the fact that it had passed through several hands, the price was higher than would be necessary if it had passed from the bee-keeper direct into the hands of the retailer.

This matter is surely important. The next question is, "How shall it be remedied?" The question is a difficult one. If a store could be induced to subscribe for a good live bee-journal, much could be done to educate the salesman. Bee-keepers, too, should be wide awake, and instruct the parties to whom they sell their honey, and place them in a position to refute statements injurious to the sale of honey. An instance: A customer comes in and says, "I would buy that honey, only there is so much manufactured at the present day, I fear yours may be." The clerk, who is doubtful himself, will, if he is conscientious, shut his mouth; if not, he may say, "This is not manufactured," etc. But if he can say with confidence, "It can not be manufactured," and show there is a reward of $1000 offered for the manufactured article, which has never been claimed, then he is likely to convince his customers, and effect a sale.

I saw friend Herschiser in Buffalo, and he stated they even called honey "evaporated," and that if people could only feel sure that honey is pure, much more would be sold. R. F. HOLTERMANN.

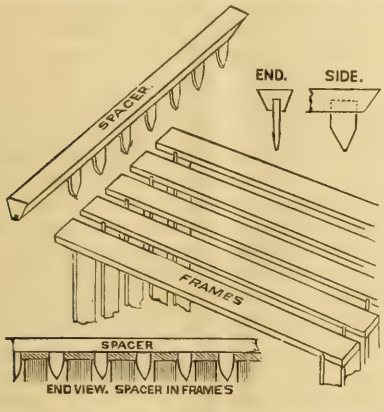
Romney, Ont., Apr. 23.

Friend H., what you tell us is truly astonishing, and, I might add, discouraging. By the way, you did a good thing when you started out to find out about honey. I have often done the same thing when waiting for a train in a large city, and I believe it is well worth while to canvass our towns and cities thoroughly whenever opportunity offers. It is not only on honey that clerks are often deplorably ignorant, but on many other things they handle. And here is a hint for those who are out of work, or think they do not get as much pay as they ought to. They do not read and inform themselves, and keep posted. Just talk with some of our runners for the large manufacturing establishments, and see how thoroughly they are posted, not only in regard to the goods they sell, but also in regard to the current gossip of the day, not forgetting manufactured comb honey. By the way, when you start out in a city, do not forget our reward cards.

FASTENING FRAMES AND TOP-BARS FOR SHIPMENT.

T. P. ANDREWS TELLS US HOW HE DOES IT.

THE questions, how to fasten on loose bottom-boards, and how to fasten the frames for transportation, seem to interest many who wish to move bees. Five years ago, while fixing up a carload of bees for a move, I devised and made a lot of comb-spacers, one of which (half length) I send you. By raising the front end of the hive, one of these spacers is readily slipped on to the bottoms of the frames, near the middle. Now, when you have let your hive down on to the bottom-board you have the frames fixed so there will be no swing to them.



Put one of the spacers across the top-bars, near each end, and you will have the frames secure from any movement on the rabbet. These spacers are cheaply made, quickly adjusted, and have none of the objections that are held against staples, nails, etc., driven into frames or hives.

To fasten on bottom-boards easily, securely, and cheaply, procure a lot of tins cut to about ¾x½ in., and a supply of rather thick wire nails one inch long. Three of these tins, tacked on to each hive, one each side near the front, and one at the middle of the back end, holds the bottom-board to the body.

I drive a nail diagonally into the back end of the bottom-board, to keep the hive from slipping off when the front end is raised.

To cover the hives and at the same time give the necessary ventilation, I made frames of lath, halved together at the corners, just the size of the tops of the hives, which are not beveled. On to these cover-frames wire cloth is securely tacked. After the comb-frames are fastened, the enameled-cloth cover is slid back so as to leave an opening for air, the size of which is adapted to the strength of the colony and the warmth of the weather. The wire-cloth cover is then placed on the hive, over the enameled cloth, and fastened with four wire nails. When this is done, and the entrance closed with a cleat tacked on, the bees are in good shape to transport by wagon or rail, as I have occasion to know from a somewhat extensive experience in the use of these appliances. T. P. ANDREWS.

Farina, Ill., March 6.

Your plan of fastening frames is very similar to the one we used last summer (see GLEANINGS, page 551, last year). The notches in our strips were not pointed. Yours would have the advantage that they would crowd between the frames better. I don't believe I should like your method of fastening bottom-boards; it is too much work.

REMOVING QUEENS TO PREVENT SWARMING.

E. FRANCE ANSWERS A SEASONABLE QUESTION.

WHEN you remove the queen from a colony to prevent swarming, how long do you keep her out? What do you do with her in the mean time? and is there any trouble in putting her back?

The above question was handed in by one of our subscribers, for E. France. We forwarded the same to him, and he replies:

Our out-apiaries we visit only once a week. We simply cage the queens in the hive, and usually let her remain caged two weeks. The bees build queen-cells when the queen is caged, just the same as they would if the queen were taken away. We never cage more than three-fourths of the queens in the apiary, at one time, for the reason that we must have some young brood from which to raise queen-cells. After the queen has been caged one week we are on hand again to extract. It won't do to leave the queen-cells another week, so we tear them all out and give the colony at least one comb of very young bees and eggs, from which they will raise another batch of queen-cells. At the end of the second week we again destroy all queen-cells, and then liberate the queen. If we are making any new colonies at the time we are caging queens, then we would put the queens into the new colonies, and after two weeks let the old colony raise a queen. But sometimes bees will swarm with a caged queen. In that case, take the queen away, out of the hive; that will cure them, *sure*. But, remember that, if a colony has no queen, they must have something from which they can raise one; then they will work and feel happy. See GLEANINGS for 1889, p. 17.

If I were running for comb honey I would get the bees just as strong as I could without swarming; then take the queen away, give her a quart of bees and some combs, and there let her remain until the close of the honey-flow, say 20 days; then return her with her combs and brood. It would be safer to cage her for one day, but we don't do it, for by this time she has quite a nice lot of bees and brood to go with her. We have run a few colonies at home in this way for several years, and never yet have lost a queen in putting them back. Of course, the old colony that is at work all this time making comb honey must be kept supplied with brood, young enough, from which to raise a queen, and queen-cells are to be destroyed once in ten days, then give them more brood. E. FRANCE.

Platteville, Wis., Feb. 23.

Friend F., you have struck upon one point that I didn't see. You say that bees will sometimes swarm with a caged queen; but, of course, in that case they will come right back to the hive, unless, indeed, they find some other swarm to unite with. It seems to me from the above that it does make a difference, in some respects at least, whether the queen be caged in the hive, or taken entirely away. A queen with a quart of bees can usually be returned to the hive

she came from, especially if honey is coming in, and they have no other queen hatched. At other times I think there will occasionally be trouble.

SPACING BROOD-COMBS.

HOW FAR APART SHALL WE SPACE OUR BROOD-COMBS FROM CENTER TO CENTER?

WHAT is the proper distance from center to center to space brood-combs—1⅜ inches? So far as I know, 1⅜ is all right, and I think it is the distance agreed upon by the majority. But sometimes we settle down upon something in a kind of passive way, without any special reason for it; and sometimes that turns out right, but sometimes wrong. How about this spacing business? What do we *know* about it? *Why* is 1⅜ better than 1¼ or 1½? *I* don't know; but is it not time to examine the matter a little? One of the first factors in the problem is the thickness of brood-comb. If I am not mistaken, worker comb, when first made, is ⅞ thick. As successive generations of brood are raised in it, the deposits at the base of the cell increase the thickness of the septum, and wax is correspondingly added at the mouth of the cell. So, you will see, the thickness of comb, although an important factor, is not a *fixed* factor. Without giving the matter any special attention, I have measured worker comb a plump inch in thickness. Here an eighth of an inch has been added to the thickness; and if the comb were twice as old, would not another eighth be added? So I should not like to say that $\frac{15}{16}$ is the average thickness, only that it is constantly increasing in thickness, that thickness bring limited only by the age of the comb or the room the bees have to elongate the cells. I have seen cases where I suspected the bees had gnawed down every thing to the original septum of wax, just because through age the comb had become so thick that it could be made no thicker without making the passageway between the combs too narrow. If the bees could have moved the combs further apart, I see no reason why they might not have done so and gone on thickening the combs.

But I suspect that we so seldom have comb thicker than one inch that we may base our calculations on $\frac{15}{16}$ as the thickness of comb. And here I may remark, in passing, that friend Heddon, when he said he would have top-bars only ⅞ wide if he had $\frac{5}{16}$ space between them, could hardly have counted much upon combs increasing in thickness with age. With top-bars ⅞ wide and $\frac{5}{16}$ between them, there would be $\frac{5}{16}$ space between combs when new, and that space would be constantly decreasing as the combs grew older. While the comb is new there would be barely room for two bees back to back, each hugging down tight to the comb; and when the comb becomes one inch thick there will be only $\frac{3}{16}$ between the two faces—not room enough for the queen to stand erect. Would the bees tolerate such a condition?

The next question is, What space is desirable *between* the faces of the combs? There is good authority for saying that there should be more space between combs in winter than in summer. For all that, I think the majority will keep the same space summer and winter, and we are left to decide what, all things considered, is best for all the year round. Suppose we have our brood-combs spaced 1½ from center to center, with a cluster large enough to occupy 8 combs. If, now, we space our combs a little less than 1¼ from center to center, 10 combs will go in the same space the 8 occupied, allowing us to raise a fourth more brood with the same bees, because they can cover just that much more. But there is a still further gain; because, when we put in the two extra combs, there is just that bulk of bees displaced to occupy more combs. The 8 combs measuring $\frac{15}{16}$ each, occupy 7½ inches, leaving 4½ inches as the measure of the bees that fill the spaces. Now, suppose we space our combs 1¼ inches from center to center. Take $\frac{15}{16}$ (the thickness of the comb) from 1¼ inches, and we have $\frac{5}{16}$ as the space to be filled with bees. We have 4½ inches of bees, and these will fill 14 spaces of $\frac{5}{16}$ each. So we can have 14 combs covered by the same bees that covered the 8 combs, just by spacing them ¼ inch closer. In the same way, if we space 1⅛ from center to center we shall find that, instead of 8 combs, the same bees will cover 24 combs, barring the fact that some of the bees may go into the cells. And so, the closer we space, the more brood we can raise, till—but, hold on! Another factor comes in. We can't space so close that the bees can't get between the combs to feed the babies, even if the queen had the eggs laid there. Moreover, there must be enough bees between the combs to keep up the requisite heat or the eggs will not hatch. A single bee can not hatch an egg, as a hen can; and in spring weather I don't think a single layer of bees could. So you see we gain by spacing closer, only up to a certain point. When we find just what the right point is, then spacing closer than that will leave some of our outside spaces too cold to hatch eggs, and we shall lose by it. *Somewhere* about 1⅜ from center to center is right; but I don't suppose it is *exactly* 1⅜. How can we find what it is? Upon that depends our spacing and the width of our hives. I suppose we need to find what is best for spring; for, after warm weather comes, it does not matter so much; and at the South, can we not space closer than at the North? I should not be surprised if some one points out factors that I have left out altogether, and I feel that it is worth while to find out all we can on this topic.

Marengo, Ill., Mar. 24. C. C. MILLER.

Doctor, I am glad that you did think about accommodations for the nursing bees. When they are incessantly putting their heads into the cells, and backing out again, they can not afford to have cramped quarters, nor even to have somebody just behind them to hit against, every time they back out. Suppose *you* had to crawl into a cell to feed the children, and you were given such close alley-ways that you are striking a back wall every time you back out. Now have these alley-ways crowded with people, and see what a predicament you are in. Our packing-room has been too much like that during the past few weeks, and I tell you it pays to have more room or fewer people. I do not believe that combs ever ought to be nearer than 1⅜ inches; and if they are old and crooked and wavy, I am in favor of something pretty near 1½ inches. In changing combs about promiscuously, as we used to do every day and every hour, I have seen brood-combs pushed so closely together that the nurse-bees could not get in to feed the larvæ, and keep them from starving, with-

out cutting down the surface of the comb; and sometimes after having done this there was not room for the larvæ on both sides to be capped over, when they became large enough. Then our little friends had a serious problem on their hands. Now, I do not believe in putting combs too close, neither do I believe in turning them around and mixing them up promiscuously. Of course, the bees *can* adjust themselves to such bungling operations on the part of their keeper, but I am sure that it results in a loss of brood more or less, and consequently a loss of honey-gatherers when the season opens.

REMOVING THE QUEEN.

STIMULATIVE FEEDING, ETC.

I WAS surprised to read the answers in GLEANINGS regarding this question, as I often am in reference to stimulative feeding. I have tried both of these very carefully under the most painstaking caution to avoid any error—no guesswork at all. I am sure that our bees—and they are very much like other bees—do breed more rapidly when fed, in case no storing is in progress; and I am as fully convinced that removing the queen at the proper time, if done so as not to disturb the peace of the colony, will give more honey. It may not always be well to do this, but it does add to the harvest.

THE JOINT-SNAKE, AGAIN.

Willie Atchley has sent me another of these lizards. This one had never lost its tail, and was a beauty. In coming from Texas it took occasion to shed its scales, or skin. This was done in shreds, not entire, as seen in snakes. The specimen came in nice trim by mail, and delighted me. Judge of my regret, then, when a student, in studying its habits of motion, preparatory to giving a paper on this lizard before our Natural-History Society, let the latter crawl through a hole in the laboratory floor, and escape. The student felt even worse than I did.

SCALE LICE.

The scale lice, which secretes such an abundance of honey-dew, and which Mr. Jos. Barrengton, of St. Mary's, O., reports as infesting his lemon-trees, are closely allied if not identical with the one sent by Dr. Miller, which infested the English ivy. The genus is *Mytilarpis*. It is near, if not *nerii*. The plants should be treated with the kerosene emulsion, as I describe in Bulletin 58. This bulletin will be sent free to all who desire it, upon application.

Agricultural College, Mich. A. J. COOK.

Friend C., if you have tested these two subjects, stimulative feeding and removing the queen, at the college apiary, as you people usually test disputed questions, I think we shall have to give up on both points I am surprised to learn that your laboratory floor is so poor as to have a hole large enough for even a glass snake to creep through. My observation was to the effect that your buildings and rooms were models of perfection. I earnestly advise all our readers who are interested in this matter of fighting insect-enemies to send for Bulletin 58. But, dear friend Cook, you had better hire an extra clerk in anticipation of the calls that will be made for it. Remember that we GLEANINGS people are now almost 10,000 strong.

SWARM-CATCHERS.

A NEW USE FOR THE DRONE-AND-QUEEN TRAP.

"We don't want swarms," says our friend Shuck. Well, we do not; that is, some bee-keepers do not. The bees do not seem to know this fact; or if they do, they care nothing about the wants of man. When the bees get ready to swarm, out they come, and so they will continue to do, no matter what *we* want, or what the breed, strain, or race of bees happens to be. We have *all* found this out, haven't we, Bro. Shuck? 'Tis well enough to talk about a non-swarming race or strain of bees; but it is quite another thing to produce them by any means yet devised.

Well, now, recognizing these facts, why not be ready for the bees when they get ready to swarm? Let us provide the easiest, cheapest, and most practicable means for catching swarms when they issue. When we first introduced the drone-and-queen trap, friend Root said a good word for it, and at the same time remarked, "Now if some one will devise some way for hiving bees when they swarm, etc." (I can not recall just the words, as I have not the copy of GLEANINGS at hand that contained the article), "it will be a good thing," or words to that effect. Well, what we are getting at now is friend Root's comments in a foot-note attached to the description of an article describing the self-hiver we were invited to send GLEANINGS about a month ago. What puzzles me is this: Why it was that, when Bro. Root indicated that a self-hiver would be a good thing when speaking of the trap, some six years since, is the fact that he did not know at that time all about self-hivers, as mentioned in the foot-note spoken of above. The idea of inviting some one to attempt to invent a self-hiver, and then comparing it, when invented and described, to Mr. Quinby's "queen-yard" arrangement! Goodness, friend R., it makes me nervous to think about it. Quinby's device was about as much like our automatic swarmer as cheese is like chalk.

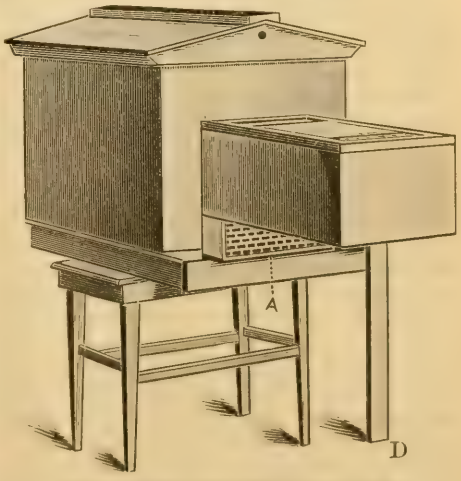


FIG. 1. TRAP ATTACHED TO A HIVE.

Excuse us for getting off the track. We will now

describe how to catch a swarm of bees in the drone-and-queen trap.

Those who use the trap have noticed that, when a swarm issues, and after the bees return to the parent hive, as many pile into the trap as can, and will be found there. The idea struck me that the trap might be made large enough to hold the entire swarm, and so we show the reader a cut of such a trap, and will describe how it is arranged, and its workings in catching a swarm of bees when they issue.

Fig. 1 shows the trap attached to a Bay State hive. You will see that it projects considerably beyond the front of the hive. The bees, to gain access to their hive, must pass under the trap and enter through the metal, A.

Fig. 2 shows the interior of the catcher. It is the same as the drone-trap. In fact, it is nothing but the drone-and-queen trap on a larger scale. Instead of being made just large enough to hold a pint of bees the trap will hold the largest swarm likely to issue from any hive.

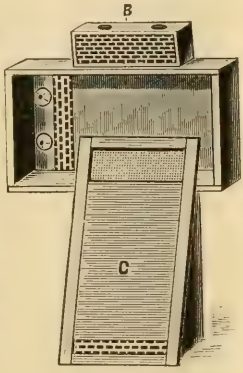


FIG. 2. OUR NEW SELF-HIVER.

The trap has a portable cover (c), so that, when a swarm has been hived, the bees can be quickly removed, or placed in a new hive. This device may be attached to the hive in a dozen different ways, to suit the fancy of the apiarist. It will be seen that there is a stake (D) driven into the ground under the front end of the trap, for the box to rest on.

B, as shown in Fig. 2, is a box, open on one side, so the bees can enter, while the opposite side is covered with perforated metal. This represents the bottom chamber of the drone-and-queen trap. Two cone-tubes are used for the bees to pass into the trap.

We stake our reputation as a bee-keeper, on the statement that this trap will catch and hive ninety-nine out of every one hundred swarms that issue. The queen will enter the trap, and, when the bees return in search of her, they will readily find her ladyship in the box, ready to receive them.

You will notice in the trap (Fig. 2), and just ahead of the cone-tubes, a strip of perforated metal. This is so arranged that it comes exactly over the entrance to the hive, and above the metal A. When the bees return after having missed their queen, they will pass into the trap through this metal, and join their queen. Here the bees will be found on the return home of the apiarist, when they can be disposed of to suit his pleasure. If no hive is ready, the box can be placed on the stand the bees are to occupy, and hived when most convenient. If the bees are to be returned to the hive they issued from, this can be done after the combs have been examined and the queen-cells removed or destroyed.

We shall send Bro. Root one of these traps, and arrange with him to make some at once, so those who desire can test them the present season.

Wenham, Mass. HENRY ALLEY.

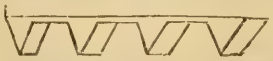
Friend A., I think I understand your arrangement as given in Fig. 1; but if I am correct it is a little confusing in Fig. 2, because the engraver has not quite done his duty. The hiving-box, and B and C, are simply three separate articles, and rest upon each other in the manner shown, only for convenience. I really hope the device will hive 99 out of 100 swarms that issue. But without taking more space I think we had better wait for reports from those who are now using it to hive swarms. With the present crowd of business now upon us, we could not undertake to make any new thing just now; and as we have so little swarming, especially in connection with our selling bees by the pound, we fear we shall not be able to make a test of the machine that will be very satisfactory.

FRAME-SPACERS.

THICK TOP-BARS AND PERFORATED ZINC.

EVER since Dr. Miller and you were talking about that queen-excluding strip to go on the top of the heavy top-bars, I have been thinking; and this is what I have evolved: Instead of having a saw-kerf to slip the zinc into, which is almost sure to be glued up with propolis, bend the zinc into an L shape, and let the L part with the slots in slip down over two broad-headed nails driven into the side of the top-bar; then when a frame is to be removed, the zinc can be lifted out, and have the "lateral" movement, so desirable to the frame. They could all be taken off if necessary. Have I made my meaning clear? But I do not think any such arrangement will ever become practical, as it would be so much in the way in handling the frames.

If we are to dispense with honey-boards by using heavy top-bars, it seems we have got to have the frames spaced just exactly right; in fact, too exact for the average bee-man's eye to do the work; so, to help out, here I have invented what I call an automatic spacer, made thus, the points to be made



of heavy tin, and to be just a bee-space at the base, and, say, one inch from base to point, and the distance between them to be just the width of the top-bars. Not to be left on the frames, but to crowd down from the top, so as to force the frames to the right place, two would be necessary; for if only one were used, the frames might move out of place at one end, while the other was being adjusted. They might be nailed to a block with a handle, something like your tool for fastening foundation in wired frames. If to be used to remain permanently on the frames, of course a ⅜ block would have to be used. I think this might give the advantage of fixed ledges on the hive, with none of the disadvantages. What do you think? C. A. HATCH.

Ithaca, Wis., Feb. 19.

Friend H., your slips of zinc would be stiffer and safer to handle by having a fold made lengthwise, as you suggest; but I agree with you that they would be too much machinery. I do believe that some sort of frame-spacer would be an excellent thing, if we propose to do away with burr-combs by reducing the space between the top-bars. Ernest suggests that a spacer could be made by driving wire staples into the strip of

wood. The round end of the staples would readily force the frames into position. Of course, the staples need not project out of the wooden bar more than far enough to bring the frame into position. Our friends who are fond of extreme accuracy in their work would like such an arrangement.

On page 415 another friend gives us an excellent illustration of a frame-spacer. His intention was to use it to keep the frames in position. But they will answer nicely for bringing frames into place, as suggested by friend Hatch above.

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

In order to read understandingly the reports given below, it will be necessary to observe the following points: First, the State is given; then next in their order are the names of the reporters, with their respective postoffices. To indicate locality, the usual abbreviations are used—N., S., E., and W., for north, south, east, and west; N. E. for north-east, etc. The letter C indicates the word "central;" E. C., east central, etc. In the following list, the first figure represents the month, and the second figure the date at which the report was rendered. The small letters, a, b, c, d, etc., indicate the answers to the questions propounded in questions a, b, c, etc., just below.

For some reason or other we have not received reports from all of our correspondents, although nearly two weeks have elapsed since the questions were sent out. The average date at which the replies are given is May 18. We propounded only two questions, and they are as follows:

a. What percentage of loss did you sustain among your bees last winter, and by what method—indoor or outdoor?

b. As nearly as you can estimate, what was the percentage of loss in your locality, and by what method?

ALABAMA.

J. M. Jenkins, Wetumpka. C. 5-19.
a, b. 10; out in the sun. Loss was caused by hard freeze March 1st, after a very warm winter.

W. P. W. Duke, Nettleborough. S. W. 5-20.
a, b. 2; outdoors.

ARIZONA.

Jno. L. Gregg, Tempe. C. 5-20.
a. 2, outdoors; b. 2; outdoors; all outdoors in this Teritory. Have taken 3000 lbs. mesquite honey.

COLORADO.

Mark W. Moe, Denver. C. 5-17.
a. 4; bee-house; b. not over 5, mostly outdoors, no chaff.

CONNECTICUT.

Lewis Sperry, Hartford. 5-16.
a. Less than 10; outdoors; b. about ten per cent.

Daniel H. Johnson, Danielsonville. E. 5-16.
a. 10; outdoor; lack of stores; b. 10 to 20; outdoor, but all starved.

R. M. Wilbur, New Milford. 5-17.
No loss; 30 stocks; outdoors; 5 per cent; all outdoors.

GEORGIA.

Walter McWilliams, Griffin. W. C. 5-19.
a. None; outdoors; b. none; outdoors in Simplicity one-story, without enamel cloth.

T. E. Hanbury, Atlanta. N. 5-16.
a, b. No loss; outdoors. As a rule we have no loss in this section from wintering.

R. H. Campbell, Madison. 5-22.
a. 15; outdoors. b. 25; spring dwindling. It was summer till March, the next 60 days winter. Honey-crop a failure.

INDIANA.

Mrs. A. F. Proper, Portland. E. C. 5-19.
a, b. No loss. Outdoors.

I. R. Good, Vawter Park. N. W. 5-23.
a. 5½; cellar; rest, chaff; b. 5; outdoors in chaff.

ILLINOIS.

C. Dadant, Hamilton. N. W. 5-17.
a. 3 per cent, both ways; b. 10 or 15; out; starvation the cause. No loss anywhere except from overbreeding and subsequent starving.

F. W. Goodrich, Bloomington. C. 5-15.
a. 5; outdoors; b. 10; outdoors.

C. C. Miller, Marengo. N. 5-16.
a. 7 per cent indoor; b. 10 per cent, mixed. Bees booming; heavy in bees, but weather is cool, and bees may starve in June as last year.

Mrs. L. Harrison, Peoria. W. C. 5-17.
There has been no loss, indoor or out, except by starvation. Bees did well this spring, until the May freezes; since then bees have been chasing out the drones; some would have starved had they not been fed.

INDIAN TERRITORY.

R. W. Swain. Vinita. 5-17.
a. I had 25 stands; lost 1 from moth; outdoor; b. very little loss.

IOWA.

Z. T. Hawk, Audubon. W. C. 5-16.
a. Lost none; cellar; b. 12½; cellar, mostly. I have lost a few colonies by robbing since placing them out. All are short of stores.

Eugene Secor, Forest City. N. 5-20.
a, b. 10; cellar.

J. W. Bittenbender, Knoxville. S. E. 5-15.
a. 5; wintered in cave; b. 8; wintered outdoors; bees in good condition, but very dry; unless a rain comes soon, the honey-crop will be short.

Oliver Foster, Mt. Vernon. E. 5-17.
a. 30; indoors; 1 per cent outdoors; b. 10 indoors.

A. Christie, Smithland. W. 5-17.
a. About 2; part in cellar, part outdoors; chaff in upper story, over bees. b. I can not estimate, more than that loss is small.

KANSAS.

B. F. Uhl. Boling. 5-19.
a. No loss; outdoors; b. no loss; on summer stands.

J. B. Kline, Topeka. E. C. 5-16.
a. Part indoors and part out. No loss. b. None to speak of.

KENTUCKY.

D. F. Savage, Hopkinsville. S. W. 5-20.
a. No loss; outdoors; b. 5; outdoors. A few cases of spring dwindling.

J. P. Moore, Morgan. N. 5-16.
a. 0; outdoors; b. 25; outdoors.

MAINE.

J. Reynolds, Clinton. S. E. 5-19.
a. 0; cellar; b. 8; report says mostly loss of queens.

C. W. Costellow, Waterboro. S. W. 5-17.
a. 10; outdoors in single-wall, without protection. b. 5; all methods.

IDAHO.

Whitney Bros., Payette. 5-19.
No loss to speak of; bees get no care whatever; and, under circumstances, do well.

MARYLAND.

Simon P. Roddy, Mechanicstown. 5-18.
a. 0; outdoors, frame hives; b. 10; outdoors; box hives.

S. Valentine, Hagarstown. 5-21.
a. 5; outdoors; b. 25; starving out.

MASSACHUSETTS.

J. E. Pond, No. Attleboro. S. E. 5-19.
a. Saved all. Wintered outdoors. b. Probably 20, all outdoors. Few bees are kept within 25 miles of my residence. 100 colonies would cover the number, I think. I wintered only 5 colonies.

E. W. Lund, Baldwinsville. N. C. 5-19.
a, b. No loss; in chaff hives. I wintered outdoors.

Wm. W. Cary, Colerain. N. W. 5-16.
a. None, only by queenlessness; cellar and six hives; b. 5 to 10; cellar and summer stands. Condition of bees never better at this season of year.

MICHIGAN.

R. L. Taylor. Lapeer. 5-17.
a. 5; cellar; b. 15; part outdoors, unprotected, and part in cellar.

George E. Hilton, Fremont. W. 5-17.
a, b. 5; chaff hives.

A. J. Cook, Lansing. C. 5-15.
a. 5; in cellar; starved; none outdoors; b. about 10; three-fourths cellar; one-fourth on summer stands.

James Heddon, Dowagiac. S. W. 5-16.
a. ¾ outdoors, no loss; ¼ indoors, 30 per cent loss. b. The same as above was practically true with all the bees in this locality.

H. D. Cutting, Clinton. S. E. 5-18.
a. 2 from 62 after setting out from cellar. Those packed out, no loss. b. 10 to 12; nearly all outdoors.

MINNESOTA.

W. Urie, Minneapolis. E. C. 5-20.
My own bees sustained a loss of 15 per cent in bee-house, made nearly frost-proof, built on top of the ground. The loss in this part of the State is fully 25 per cent. Almost all are wintered in cellars. I do not know of any parties who use the chaff hive.

N. P. Aspinwall, Harrison. C. 5-20.
a. 2½; cellar; b. 50; cellar; cause, honey-dew producing dysentery.

MISSOURI.

Jno. Nebel & Son, High Hill. E. C. 5-17.
a. 1; cellar; b. 5; outdoors.

James Parshall, Skidmore. N. W. 5-19.
a. 15, outdoors, in single hives; b. about 15; mostly by starvation.

Chas. L. Gough, Rock Spring. E. C. 5-19.
a. 24; outdoors; b. 50; outdoors.

E. M. Hayhurst, Kansas City. W. 5-17.
a. 0; cellar; b. 5; outdoors.

S. E. Miller, Bluffton. E. C. 5-18.
a. 17; winter and spring; outdoors; b. perhaps 20; chaff division-boards and cushion in S. hives.

NEBRASKA.

J. W. Porter, Ponca. N. E. 5-17.
a. 85; outdoor trench; b. 25; lack of stores.

F. Kingsley, Hebron. S. C. 5-21.
a. 0; outdoors; b. 5; outdoors, no packing.

J. M. Young, Plattsmouth. 5-19.
a. ⅓ of our apiary is lost; all died in summer hives; but little loss in chaff hives; wintered on summer stands. b. ⅔ of the bees in general are dead, all caused from starvation. The wintering on summer stands is practiced more than any other method, and without chaff.

NEVADA.

E. A. Moore, Reno. W. C. 5-22.
a. 5; outdoors; all my hives are Simplicity. b. 25; outdoors; mostly in old box hives. The winter was the coldest we have had for 30 years, to my knowledge. Bees are doing splendid at present time.

NEW HAMPSHIRE.

C. E. Watts, Rumney. C. 5-19.
a. 66; cellar too cold; b. 15 to 20. I think nearly all in cellar.

L. A. Freeman, Lancaster. N. W. 5-18.
a. 30; cellar; b. 35, indoors. Cause, dysentery. I never heard such universal complaint.

NEW JERSEY.

Watson Allen, Bernardsville. N. C. 5-19.
a. 6⅔; outdoors, in chaff hives; b. 10; outdoors, in single-wall hives.

J. D. Coles, Woodstown. S. W. 5-19.
a. 28; chaff; b. 40; outdoors, old-style gum.

NEW YORK.

G. M. Doolittle, Borodino. C. 5-17.
a. 25; part in cellar, part outdoors; b. 25; same as above, cause, honey-dew.

H. P. Langdon, East Constable. N. E. 5-19.
a. 12; cellar; b. 25; cellar.

G. H. Knickerbocker, Pine Plains. 5-17.
a. 5; in cellar; no loss in those wintered outside. b. 10, mostly outdoors.

NORTH CAROLINA.

Abbott L. Swinson, Goldsboro. E. 5-20.
a. 10; open air; b. 50; open air.

OHIO.

A. B. Mason, Auburndale. N. W. 5-17.
a. 3; starved; cellar; b. 5; outdoors and in cellar.

Chas. F. Muth, Cincinnati. S. W. 5-16.
a. Lost none; but 3 colonies had lost their queens; outdoors; b. perhaps 20; mostly in single-walled hives.

S. A. Dyke. Pomeroy. O. 5-17.
a. 20; outdoor, in chaff mostly. b. 10; outdoors. My loss was caused by dividing too late.

Dr. G. L. Tinker, New Philadelphia. N. E. 5-16.
a. No loss. All outdoors, in winter cases. b. 3; starvation; wintered in chaff and single hives.

Dr. H. Besse, Delaware. C. 5 20.
a. 10 cellar, and 15 by spring dwindling; b. about 20 to 30, as nearly as I can learn, mostly from springing: too much cold rain during time of bloom.

PENNSYLVANIA.

S. W. Morrison, Oxford. S. E. 5-17.
a. No loss; outdoors: b. 40; box hives, summer stands. Prospect for a big crop of honey excellent; too much rain, the only thing that can prevent.

Thos. C. Davis, Pittsburgh. C. 5-19.
a. No loss, except three queens, out of 34; outdoors in chaff; b. heard of no losses except a few queens, outdoors.

C. W. King, Emlenton. N. W. 5-20.
a. 100; b. 98; outdoors.

RHODE ISLAND.

A. C. Miller, Providence. E. 5-17.
a. None; outdoors; chaff, unpacked; b. 30 to 40. All by starvation.

Samuel Cushman, Pawtucket. 5-15.
a. Mine, 5; few in cellar. b. Box hive fared badly. Loss from starvation throughout the State, probably 50 or 60.

SOUTH CAROLINA.

H. T. Cook, Greenville. 5-18.
a. 4; b. light.

W. J. Ellison, Stateburg. C. 5-21.
a. 3; starvation; outdoors; b. I don't know.

J. D. Fooshe, Coronaca. 5-17.
a. No loss; outdoors; b. none; Simplicity and box hives.

TENNESSEE.

W. H. Greer, Paris. N. W. 5-19.
a, b. 25; outdoors.

C. C. Vaughn, Columbia. C. 5-20.
a. 2; outdoors; b. 8; outdoors; no packing, thin hives.

Gaston B. Cartmell, Jackson. W. 5-19.
a. I had 45 stands; lost 2; b. outdoors, without protection.

TEXAS.

J. P. Caldwell, San Marcos. S. W. 5-18.
a. None; outdoors, in S. hives. b. 5.

L. Stachelhausen, Selma. S. C. 5-18.
a. 2, by queenlessness; outdoors. b. 2. We have no winter losses here except by queen losses or starvation.

J. E. Lay, Hallettsville. S. W. 5-21.
No winter losses here.

VERMONT.

A. E. Manum, Bristol. W. 5-19.
a. 3 winter and 3 in spring, making 6 in all; outdoors, chaff. b. 30; outdoors in chaff.

J. E. Crane, Middlebury. W. 5-15.
a. 33; cellar, 75; outdoors in chaff hives. 26. b. About 30; wintered mostly outdoors in chaff hives. Cause of loss, gathering a large amount of honey-dew last year.

H. E. Harrington. Walden. 5-19.
a. 0, in sawdust; 25 without sawdust; cellar; average, 16. b. 29; cellar.

Howard J. Smith, Richford. N. C. 5-17.
a. 0; cellar; b. 25, outdoors. Cold wet weather.

F. M. Wright. Enosburgh. E. 5-17.
a. 5; cellar; b. 10; cellar.

VIRGINIA.

H. W. Bass, Front Royal. N. 5-17.
a. 3; outdoors. b. 5; outdoors.

WEST VIRGINIA.

J. A. Buchanan, Holliday's Cove. N. 5-20.
a. 2; outdoors; b. 5; outdoors. Loss from starvation will be great within the next ten days, unless feeding is attended to, as no honey has been gathered.

Will Thatcher, Martinsburg. W. C. 5 17.
a. One colony out of 60; a pure case of starvation; outdoors; from 3 to 4 inches timothy chaff in burlap cushions over brood-chamber. b. With proper care, no loss.

Jno. C. Capehart, St. Albans. S. W. 5-19.
a. 0; outdoors; b. no other modern bee-keepers in my locality.

M. A. Kelley, Milton. S. W. 5-17.
a. 7; outdoors; b. about 10; all outdoors. No chaff hives used.

WISCONSIN.

Joshua Bull, Seymour. E. 5-19.
a. 35, cellar; 19, outdoors in chaff; loss mostly from spring dwindling; b. 30 to 50; cellar and clamp. One bee-keeper lost all of his bees. Cold backward spring, unfavorable for bees to build up.

S. I. Freeborn, Ithaca. S. W. 5-19.
a. 25; cellar; b. 25; mostly cellar wintering.

Frank McNay, Mauston. C. 5-16.
a. 25; indoors; b. 25; indoors.

E. E. Tongue, Hillsboro. 5 19.
I wintered mine on summer stands in L. hive, no loss. I haven't found any loss last winter; all good; all winter in cellar.

E. France, Platteville. S. W. 5-17.
a. 6; outdoors in chaff; b. 10; outdoors.

A summarized statement is as follows: The average percentage of loss among the special reporters during the past winter is only 8⅔ per cent. By referring to the statistics of a year ago, we find that the loss was 9 per cent. We expected to see a smaller percentage for this year. The only losses, with few exceptions, that occurred during last winter, of any account, were from over-breeding and consequent starvation. If we eliminate this cause of mortality, the percentage will probably be very low. The average loss in the vicinity of the reporters, we find to be 14⅙ per cent. Last year at this time it was 17 per cent.

Perhaps it will be interesting, right here, to compare the average losses of the three preceding winters, since we began the department of statistics. The special reporters' loss during the winter of 1887 was 16 per cent; during 1888, 9 per cent; during the winter of 1889, 8⅔ per cent. The locality losses for the winter of 1887 were 33 per cent; for 1888, 17 per cent; 1889, 14⅙ per cent. It is to the credit of the books, periodicals, and progressive apiculture, that the winter losses have been decreasing. Although the reports do not show it, we notice by correspondence that there has been a very heavy loss in the region of Gallupville, N. Y., many bee-keepers losing all their bees. The cause is attributable to honey-dew. One bee-keeper said his Italians, because they gathered nothing but white stores, wintered beautifully, while his blacks and hybrids, having gathered a lot of honey-dew and buckwheat, almost all died—a great score for Italians, because they will get white stores if there is any possibility of doing so. We also gather from correspondence that there have been quite heavy losses in certain parts of Minnesota.

TREATING DISEASE WITHOUT MEDICINE.

A REVIVAL OF ONE LINE OF THE OLD WATER CURE.

I SINCERELY hope that my friends of the medical fraternity will not think that I am trespassing on their domain; in fact, I look for and beg their assistance and indorsement, that we may fight down frauds and swindles as a common enemy to mankind. Almost everybody knows more or less about the water-cure that made such a stir in regard to the treatment of disease perhaps 35 or 40 years ago. Water-cure establishments were plentiful in almost every locality then, and people went about to give lectures, and proposed to cure all diseases by water alone. Pure water was called the obvious natural remedy furnished by the great Creator to his creatures; and, like the advocates of electricity a little later, they loudly claimed that it was all-sufficient for every disease that flesh is heir to. Some of us smile now as we remember how these things had their day, and finally passed away. Water cure, however, has not entirely passed away. When you send for your family physician, nine times out of ten he will call for some hot water—a dipperful, a pailful, or perhaps a tubful; and if you just look back you will remember that the patient usually got better right away, when the physician decided that the water was what was needed. I once fell from a building and hurt my ankle. The pain was so intense that I groaned aloud (if it had been a woman, perhaps she would have kept still; you know how it is when a man is in pain). A doctor was soon procured, and I begged him to give me something—brandy or chloroform. He said he guessed all I needed was a little hot water. He put his hand into it, and said he guessed that would do, and told me to put my foot in it, even if it did come pretty near scalding. I thought at first I could not bear the water because it was so hot; but finally I got it down so the water covered the swollen ankle. The pain eased up as if by magic, and I have oftentimes wondered if it were possible that so simple a remedy could do so much. When you are so tired and worn out that you feel as if you could hardly put one step before the other, a bath in pretty hot water will set you up bright and vigorous. You are perhaps all well aware of this. A great many times we suffer because of the lack of *soap* and water. Perhaps some of you would resent such a charge; but, hold on a little. A woman was once deaf, and had been so for years. A traveling lecturer on physiology, by means of soap and water, and a proper syringe, washed out the accumulations of the ear so that she heard again as well as she ever did. This was accomplished in less than an hour. Water applied in the proper way sometimes performs wondrous cures in washing out the accumulations between the nostril and the ear. We all know what water will do for the feet when sore, or when treating them for corns. At some of our sanitariums they give relief by bathing, accompanied by rubbing and kneading the body. One of the most prominent physicians of the United States has of late accomplished great things by giving his patients hot water to drink. You may smile at this. Why should anybody need a doctor to administer drinks of hot water? Well, I do not know. They claim to have received great relief from swallowing hot water in large quantities. And now we come to the point that has prompted this article.

If water performs such wondrous cures externally, or when introduced into the ear and nostril, or other organs of the body, why may not great benefit accrue from a thorough washing and cleansing of the digestive apparatus? When you come to think of it, I presume you will be ready to say at once, "Why, sure enough!" and I believe that is just what our physicians have been doing more or less for ages past. Have you ever felt, my friend, as if you would give a good sum of money to be able to wash out your "insides" as thoroughly as you can your "outsides"? I have felt just that way a good many times, and have thought of the method in common use for doing it; yet it seemed to be a good deal of a medical operation, and I always supposed it must be done by the aid and advice of a physician. When we want to cleanse a jug we can cleanse the outside very easily, because it is in plain sight. If we want to cleanse the inside, however, the best we can do is to put in some water, and shake it about thoroughly. This we can keep doing until the water we pour out is as clean as when it was put in. Then we pronounce the jug clean. If we want to clean a barrel, we do the same thing; and by giving a barrel a vigorous tumbling about, we can secure a pretty thorough rinsing; and this is what Dr. Hall claims as his great discovery; and yet it is not a discovery, nor is it new at all. See the following, which I copy from the first doctor book I pick up:

"Water about blood-warm should be used when the purpose is to relieve constipation, and a considerable quantity — one to three pints, or more — may be used. The water should be retained for a few minutes, while the bowels are kneaded and shaken."

The kneading and rubbing of the body amounts to exactly the same thing as shaking the jug or barrel, that the hot water may effectually dissolve away all accumulations.

And, by the way, I think I will copy the entire paragraph on this subject. It comes from Dr. Kellogg's "Rational Medicine," under the head of "Rational Remedies for Disease." More than 100 pages are devoted to the use of water in the treatment of disease. We have eye-baths, ear-baths, sitz-baths, foot-baths, wet sheet, vapor bath, etc. Here is the paragraph in question:

ENEMA.

Fecal accumulations in the lower bowel are more quickly and easily removed by an enema of warm water than by any purgative, laxative, or cathartic ever discovered or invented; and the use of this remedy is never accompanied with the unpleasant and painful griping and tenesmus which often accompany the use of cathartics. The administration is a trifle more troublesome, but the results are enough superior to more than repay the inconvenience. The syphon syringe is far preferable to

any other for administering injections. Water about blood-warm should be used when the purpose is to relieve constipation, and a considerable quantity — one to three pints, or more — may be used. The water should be retained for a few minutes, while the bowels are kneaded and shaken. If there is difficulty in retaining the water, a folded napkin should be pressed against the anus. In hemorrhage and inflammation of the lower bowel, cool or cold clysters should be employed, and should be retained as long as possible. The copious cool enema is a valuable antiphlogistic remedy used in conjunction with the cool bath in cases of violent febrile excitement, as typhoid fever, when temperature rises above 105° F. Large enemas of water, or of water containing quassia, are the best mode of treatment of ascarides, or the so-called seat worms.

Large, or what are termed forced, enemata are also recommended by Dr. Mosler as the most successful means of relieving intussusception. They are also recommended in hernia and in the treatment of tape-worm, in connection with other anthelmintics. In catarrh and other diseases of the large intestines they are useful in cleansing and washing away acrid secretions and foreign matters as well as in applying local treatment. A. Rohrick, of Vienna, has observed that injections of water into the colon increase the fluidity of the bile secreted by the liver. This fact has led to its employment in jaundice due to catarrh of the biliary ducts as well as to other causes, and, according to Dr. Mosler, with successful results. In administering a forced injection, the syphon syringe should be employed. The patient should lie on his back with his hips elevated, and the enema should be administered slowly. When colicky pains occur, the injection should be withheld for a few minutes, until the pain subsides. When it is desired to force fluid into the small intestine, which may be done in case of necessity, the patient should be placed on his knees and shoulders, so as to lift the pelvis as much as possible, and the fluid should be introduced slowly.

Now, please notice, friends, when you pay money for a recipe or secret, the seller, as a mattter of course, gives all the *advantages* of the great discovery, and puts it in the most glowing terms, while he entirely ignores its drawbacks or dangers; at least, such has been my experience. Printed circulars, scattered far and wide, from Dr. A. Wilford Hall, illustrates this very pointedly. Now, please read the following from p. 664, Dr. Kellogg's book:

But the enema may become a source of mischief if abused. If habitually relied upon to secure a movement of the bowels for a long time, the bowels lose their activity, and the most obstinate constipation sometimes results, precisely as from the prolonged use of purgatives.

Dr. Kellogg declares that this very matter of thoroughly washing or rinsing these organs *may be* a means of mischief. I understand that physicians do not all agree in regard to this. While some say the use of water internally will do no more harm than washing the hands and face daily, others agree with Dr. Kellogg. A good many of us would be very glad indeed if nature would at certain times forbear a little, and, if the use of water would induce her to get over a little of her "activity," what harm would it do to use it?

Dr. Hall also makes quite a point of his treatment for diarrhea, giving the idea to the reader that this is a part of his discovery.

Now let us see what Dr. Kellogg says under the head of "Diarrhea," after giving directions in regard to diet, on page 907 of "Rational Medicine." He writes:

Next in importance as a measure of treatment, is the proper employment of enemata. We have seen more benefit derived from the injection of large quantities of hot water—as hot as could be borne, and in as large quantities as could be retained—than from any other single measure of treatment.

After reading the above I was greatly surprised to find I could bear water internally so hot as to be painful to my hand, without any inconvenience whatever; and this very warm or hot water seemed to give wonderful relief. In fact, the effect is very much like that of the rested feeling that comes from taking a pretty hot *external* bath. I am satisfied, too, that these *large quantities* of hot water do remove accumulations that may have been productive of harm for months, or may be *even years*. We read on the same page:

The hot or cold water used in injections should be employed in considerable quantities, either as hot as can be borne or quite cool.

From personal experience I am pretty well satisfied that no harm can come from using any excess of hot water, even if the quantity be so great as to produce a momentary sensation of sea-sickness.

There is much more in the book mentioned, on this subject; but the above, in connection with the advice of your physician, will be sufficient. And finally, dear friends, do not think of sending $1.00 to anybody for some one's *secret* discovery, when your own family physician knows all about it, and has known so for years. Your family physician will also be glad to tell you all that is known in regard to it. There are a great many good physicians among the readers of GLEANINGS, and I appeal to them whether I am not right. Very likely, good will result from calling the attention of the world at large to this special line of water-cure treatment. We can not very well make a mistake in keeping ourselves *too* clean.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

WHAT SHALL WE DO WHEN THE GROUND IS ALL THE WHILE TOO WET TO PLANT?

TO-DAY, May 24, almost nothing of our main crops is in the ground, because of heavy and incessant rain. For two seasons past we have had a similar experience, and were therefore partly prepared for it. We have had some sad experience in trying to work ground when it was too wet, and had therefore decided to have it in proper order, no matter how long it took. But here it is, almost June 1, and only one planting of corn has been made. Our first potatoes are pretty nearly knee-high, and so are some of the weeds. By watching our chances we have cultivated them up a few times; but if any portion of the weeds is left on top of the ground, they start to grow again. What cultivating we have done has been done when the ground was too wet for the horses to step on. A week ago to-day, by

working men, boys, and teams, until after sundown, we got in most of our early potatoes. The ground was so wet then that our teamster protested all day. Ever since then the ground has been almost like a swamp. The underdrains and overdrains are doing their duty, but they are not adequate. The only thing that can be worked is our plant-beds, six feet wide, and raised a foot or more above the paths by means of boards up at the sides. These plant-beds are worked without stepping on the soil at all, and, of course, it is all hand-worked; but the ground is manured and made soft with peat and sand, so it is so light and soft the garden-rake will give it all the cultivation needed. Just now I am seriously contemplating half an acre raised up in this way, to be worked entirely by hand. The only trouble is, during severe drouths it is hard to keep them wet enough so they do not dry clear through from side to side. Several times during the past week the ground would do pretty well for planting by hand, but it would not do for a horse to step on it. I presume that the great quantity of manure we have worked into it helps to hold the water. We first cover the ground with all the manure we can plow in; then we cover it again with a manure-spreader, and work this in with a cut away harrow. By the way, the cut away is the most useful tool for working manure into the ground I ever saw. When all other harrows would clog up and scrape the manure into heaps, the cuta-way just chopped the manure and soil all up together, and turned it under in a way that could not help make any cultivator of the soil smile. Well, as I was saying, there have been several times during the past week when we could have planted by hand were the ground only marked. At half-past four this morning, the teams could have got along very well; but none of our men were up, and the horses had not been fed, or I should have got at it. By the time they were fed and ready, another drenching rain closed the business for the day, and to-day is Saturday. Garden-stuff already commands tremendous prices, just because of this continued wet weather; and I suppose that those who have any stuff to sell will have their own price. But how can it be done unless we make our gardens in raised beds, as I have mentioned, and substitute hand work for horse power?

To-day I have been considering putting in some things by stretching a string. As a rule, this does not pay, for we not only have the labor of moving the string at each row, but the digging must all be done by hand. The furrower and marker, drawn by a team of horses, is by all odds the cheapest and best, even for small patches of ground; and for setting cabbage and celery plants, the fine dirt thrown up by the furrower is just what is wanted to put back around the plant. For tomatoes, melons, squashes, and cucumbers, or any thing that is to be put from 6 to 9 feet apart, the labor of using the string would not be so great; and if we can, by the use of it, secure a crop when nobody else has any, it might pay exceedingly well. One objection to using a string, however, is the tramping on the ground, necessitated by boys running back and forth to move the string, as well as in transplanting the plants. I am getting every year more and more averse to tramping over the ground—not only by the horses, but by men and boys, especially after it is worked up to a very high degree of fertility. Raised beds 6 feet wide seems to be the most feasible plan; and I feel sure these will pay for many products. They could be cropped very closely, and the ground kept so light and mellow that cultivation could be done very quickly and thoroughly by using rakes of different widths.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 161.—*Jones and Brown have been keeping bees on shares. Jones is the owner, and Brown is the apiarist. They agree to share equally in the profits and in the expenses. During the following winter three-fourths of the bees die. Jones avers that they were lost through carelessness on the part of Brown, and that he (Brown) ought to stand half the loss. Brown denies lack of attention, and says that, as the bees belonged to Jones, and no provision was made in the contract for such an emergency, the owner (Jones) must stand the loss. Both parties, however, agree to abide by the decision of a majority of the respondents to the Question-Box. Gentlemen, your advice is eagerly sought.*

Let him who loses no bees cast the first stone at Brown.

New York. C. P. H. ELWOOD.

Ordinarily a share in the profits would imply a share in the losses, there being no provision to the contrary.

Illinois. N. W. C. MRS. L. HARRISON.

Under the given state of facts, each must stand half the loss, even if not occasioned by the carelessness of Brown.

Wisconsin. S. W. GEO. GRIMM.

I say Jones, providing the bees were well cared for, unless they agree, as would seem to me to be wise, to share it equally.

Michigan. C. A. J. COOK.

If the above is a true statement of the case, Jones must stand the loss. Such has been my experience, and I never knew an agreement to the contrary.

Ohio. N. W. A. B. MASON.

Don't keep bees on shares. There is always a chance for injured feelings. Better buy a few colonies, then Brown will surely be interested in their welfare, for they are his own.

New York. C. G. M. DOOLITTLE.

If through the carelessness of Brown, he should share the loss, otherwise it is Jones's loss. If bees were insurable, and Jones had had them insured, would he give half the insurance money to Brown? On the other hand, if the insurance company thought the loss was through carelessness, they would not pay the loss.

Louisiana. E. C. P. L. VIALLON.

If Brown tended to the bees to the best of his ability, then they were Jones's bees that died, and Jones will have to stand the loss. The following spring they will commence the season with] the bees they had left from the previous year, if they agree to keep on.

Ohio. S. W. C. F. MUTH.

Such a question is very difficult to solve, especially as no evidence is given as to the locality where the bees are kept; yet if there are, not far from the apiary of Jones, some competent bee - keepers whose winter losses were much smaller than those experienced under the management of Brown, it would seem that the increase of loss was due to his carelessness or lack of experience, and that he ought to stand at least half of the loss.

Illinois. N. W. DADANT & SON.

Unless gross carelessness on the part of the apiarist can be shown, the owner should stand the loss. Bees are precarious property. If the owner himself, or any other man, had taken care of the bees in this case, the result might have been the same. Although my losses in winter are usually small—less than 10%—I would not keep bees on shares for any man on ordinary terms, and agree to stand half the loss, or quarter of the loss, in wintering. I should consider the risk too great.

Illinois. N. C. J. A. GREEN.

Jones, as a bee-keeper, undoubtedly knew the liability to loss in wintering, yet he makes no provisions to meet it in his contract. It is presumed that Brown was under obligations to use reasonable care on his part. Unless the loss was clearly the result of gross neglect, unreasonable and inexcusable in Brown, I can not see why Jones should have any claim upon him for the loss. But if Brown permited this loss when he could have averted it by care or labor on his part, he ought, in justice, to have a share of it.

Ohio. N. W. H. R. BOARDMAN.

If I understand the matter, Brown would stand all the loss if the bees were struck by lightning and all burnt up. So Jones is not to share in any losses. If, however, Brown is culpably careless, he must pay for the resulting damage; not sharing the loss, but paying all the damage. If the loss is partly Jones's fault he should pay for that part of the damage which results from his carelessness. It will probably be a difficult matter at best to decide just how far the loss has resulted from carelessness, and I counsel that each man be willing to do a little better than is right to his neighbor.

Illinois. N. C. C. MILLER.

Not knowing more about the matter, it is impossible to decide. I have an idea you are both to blame for the loss. Brown may have taken away too much honey and left the bees to starve in the winter. In that case Brown should stand his own half of the loss; then as Jones is the owner of the bees, it is fair to suppose he had had more experience than Brown, and should have known the condition of the bees in the fall, and advised Brown what to do. If I had seen the bees in the spring after the loss, I could then give an opinion; but without any evidence whatever as to the cause of the loss, I can not decide.

Wisconsin. S. W. E. FRANCE.

To decide this matter between Jones and Brown, I guess we shall have to have them before us to show or prove contract, for on the contract the matter rests. Ordinarily, in such partnerships the party owning the bees will have to take his chances on hard winters and poor honey-seasons; but he has a right to demand good and timely attention on the part of his tenant. If Brown properly cared for the bees, and they perished through some peculiarity of the season, Jones can not reasonably claim their loss as a part of the expense. On the other hand, were they lost through carelessness or improper handling at the hands of Brown, Brown should stand the loss resulting from his mismanagement.

Wisconsin. S. W. S. I. FREEBORN.

I should say that Jones was the loser, as no provision is made in the contract to cover such a loss. Jones, it seems, is to furnish bees, and Brown to do the work; and as there seems to be no willful neglect or want of care on the part of Brown in caring for the bees, Jones must stand the loss. I have one apiary let out in this way for five years. At the start I furnished 148 colonies, but I did not agree to furnish more if they died, neither did my man agree to keep the number good. In three years the bees dwindled down to 28 colonies. I did not ask the man to make the 148 good. I let him the apiary with full confidence in his ability to manage it. If he was not competent, I simply misjudged, and I must stand the loss; but bees sometimes die with the best of management.

Vermont. N. W. A. E. MANUM.

As no contract was entered into about the losses, it follows that neither can claim pay for loss of any thing belonging to him, unless unquestionably caused by the gross carelessness or criminality of the other. This is a general rule covering all kinds of property owned by either. It is implied, if not expressed in all such contracts, that the apiarist shall use due diligence and care with the other's property; but the burden of proof is on the owner. As there is a simple claim of carelessness on one side and of denial on the other, it looks to me as though Jones will have to stand the loss. My Iowa apiary of about 150 colonies is rented on somewhat similar terms, and we sustained quite a loss two winters ago; but I never contemplated making any claim for the same, except that new colonies next year were all mine until the original number was again secured.

Cuba. O. O. POPPLETON.

Well, well! We are now in a responsible position, but we will not shirk the responsibility. The questioner seems to admit, that, had Brown given proper attention to the bees, the loss was to rest with Jones, which is usually the case where bees are taken on shares. Now, then, a question arises, and a dispute between Brown and Jones, as to proper attention being given the bees. Now, if Jones has a claim against Brown because of malpractice, as professor of apiculture, it seems to me that it has nothing to do with the contract whatever. He should sue him for damages; but it is a separate deal altogether, as we see it. The division of the honey should be made, and probably has been made, and the question of the loss of the bees from malpractice is a different thing. If the bees died from starvation, I should think Jones would not

have much trouble in proving a claim, provided he knew nothing of the condition of the bees when they went into winter quarters, or was deceived in regard to it. But, on the other hand, if the bees did not die of starvation the chances are 999 out of 1000 that no malpractice on the part of Brown can be shown.

Michigan. C. JAMES HEDDON.

At first the Rambler was inclined to say that Brown should stand all the loss, just to punish him for doing such a thing as to take bees on shares. But we think he has already received punishment in worry over the matter, so that he will never take any more bees on shares—eh, Brown? The Rambler would, however, say that, as there was no provision for such an emergency, and as Jones knew that such an emergency was liable to arise, we think that on Jones rests the most of the blame. As to the plea of carelessness, it seems that Jones just found out that point after the bees died. If Brown lost the bees through carelessness, then he must be careless upon other points, and must be well known as a careless man. Knowing this, why did Jones let his bees to Brown upon such loose terms? The Rambler would say that Jones must stand the loss.

New York. E. RAMBLER.

I understand by the contract, that Jones's capital with the ordinary risks of deterioration in value of the same, is to balance Brown's skill and labor. I should think that loss from unavoidable causes should be at Jones's expense; all losses by Brown's mismanagement or neglect should be at Brown's expense. But without a knowledge of the cause of the death of the bees, I have nothing to base a decision on, which decision must rest on the facts of the cause of death. If the bees did not make honey enough during the season to keep them over, it should be the owner's loss. If they starved because the honey was taken from them, the apiarist should be the loser. If the bees died of dysentery or spring dwindling, I would exonerate the apiarist from almost all the loss, as, in my experience in wintering in Ohio and Iowa, I lost several apiaries almost entirely, with the best care I could give them. I think this is probably a case that would test two of the best men in the country to bear and forbear sufficiently to leave good feelings between both parties. It interests me to see them so generous as to leave the matter to disinterested and presumably intelligent bee-keepers.

California. S. W. R. WILKIN.

Ah, here we are, a duly constituted court of equity. Looks as though we should need some depositions—and how about the fees? Assuming that the contract was for but one season, three cases arise: 1. Bees lost clearly without blame on Brown's part. 2. Bees lost, and the real cause of their dying doubtful. 3. Bees lost plainly by Brown's misdoing or neglect. If the evidence puts the matter as case 1, Brown, of course, goes clear. If the evidence puts the matter as case 2, I vote that Brown go clear. Most bees that die in winter (and they are myriads) die from causes not very clearly understood; and to hold the luckless wight who handled them last responsible is plainly absurd and unjust. As the case is stated to us, the indications are that this case 2 covers the matter. If the evidence puts the matter as case 3, I vote that investigation be made whether Jones might not have saved his bees by a little inquiry as to their condition, such as he would naturally have made had they been sheep or pigs. I hold, that absurd and total indifference on his part should bar him from recovering of another man but little more guilty than himself. If the matter lies in case 3, and Jones has not shown culpable indifference to his own property, then I vote that Brown be held responsible to the following extent: He shall have the option of making good half the loss, or of taking a number of colonies of bees equal to the survivors, and building them up to an apiary equal to the one lost. If he chooses the latter he shall bear all expense and labor, and turn over all income, if any, to Jones.

Ohio. N. W. E. E. HASTY.

Well, well, well! what an array of legal lore! When I began reading, I ran down the column to see how many lawyers we had on the list. Our friend George Grimm is the only one I recognize as such, and he says very briefly that the loss should be divided, as Prof. Cook suggests also, at the top of the list; and our good friend Wilkin winds up by an exhortation for each one of them to show forth the spirit of "in honor preferring one another." At the same time, however, there is a little bit of sarcasm in the closing sentence. I believe that, if I were so foolish as to go into the partnership business in keeping bees, as soon as I found myself in such a dilemma I would make haste to outdo my partner in generosity, even if it took more than the bees were worth, and then I would resolve to buy outright, when I wanted any such property in the future.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A SIMPLE WAY OF CONVERTING FRAMES ALREADY IN USE INTO HOFFMAN FRAMES.

In GLEANINGS, May 1, pp. 330 and 331, you illustrate and describe a plan by which the Hoffman frame can be simplified, and advise bee-keepers not to go too fast. As soon as I read it I tho't of this plan, which I believe will just suit me exactly. I take $\frac{3}{16}$ stuff and cut it into strips as wide as the end-bar is thick, and 4 inches long, and nail them on the upper end of the end bar, as represented in the inclosed drawing. A is the top-bar; B is the end-bar of a Langstroth frame. I use the Langstroth frame, top-bar one inch wide, and, after reading your foot-notes, I had 10 frames fixed up before supper. There may be some objections to this style, but they need not cost much on my plan. In hiving swarms they must certainly be real handy. JOSEPH MASON.

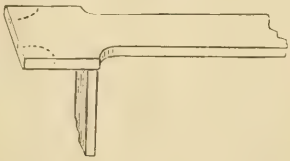
Wallace, Ill., May 12, 1890.

Your suggestion is capital, friend M. I do not know why I did not think of it before.

Yes, those of us who would like to test the Hoffman frame can easily do so by making a very slight change, in the manner you suggest, in the frames we already have in use. I hope that quite a number of our readers will try a few frames, and report. If they are not a success, the sooner we know it the better.

A PROJECTING TOP-BAR.

You ask for suggestions for spacer for frames. Make them like the top or bottom of sections. Cut out at the ends—at dotted lines if you want to. No staples, no nothing; a little more wood, that is all.



Perhaps you have thought of this a thousand times, as it is so simple. Perhaps it is like many other things—no good at all, and just a waste of postage to send it to you.—There is much good in GLEANINGS, even for those who do not keep bees.

Krumroy, O. C. H. WELCH.

Yes, this sort of top-bar has been before suggested. The trouble with it evidently was, that the projections would not readily slide by each other. The modified Hoffman frame (see page 330) would be better, I think. E. R.

SPRAYING FRUIT-TREES IN FULL BLOOM; IS THERE ANY LAW AGAINST, TO PROTECT BEE-KEEPERS?

I write to you to make the inquiry if there is any law in Ohio to protect the bee-keeper against the danger of spraying fruit-trees with poison when in full bloom. There is a neighbor here who has bought a "Perfection" pump to spray fruit-trees, and he says that it was recommended to him to spray in full bloom. If this is the case I think the manufacturers should be informed better. I had him read your article in April 1st GLEANINGS, and also the inclosed, from Chagrin Falls *Exponent*. Please reply in GLEANINGS.

Ford, O., May 19. HENRY BOSWORTH.

The following is the clipping referred to:

Prof. Reefey, editor of the Elyria *Democrat*, who is good authority on such matters, has the following in his paper relative to spraying fruit-trees.

The codling moth and other insects have become so numerous in this locality that it is impossible to raise apples or other fruit that is not more or less injured by these pests. No good farmer thinks of raising a good crop of potatoes without using Paris green or London purple on the vines, to destroy the beetles.

Mix one-fourth of a pound of London purple with forty gallons of water, and spray the trees soon after the bloom drops off, when the apples are about the size of peas. Should a washing rain follow soon after, the spraying should be repeated.

Paris green may be used in the same proportion, but it is more liable to injure the trees. In either case, the poison should be well mixed by stirring.

Let a number of farmers in a neighborhood buy a force pump and hose, with spraying nozzle, and mount it on a frame on a wagon so that a barrel with the solution can be placed under it. There are force pumps in the market especially adapted to this purpose.

For spraying on a small scale, a hand pump and a bucket are sufficient. A small hand pump will cost about a dollar.

Remember that the solution is a poison, and must be carefully handled, and don't let your stock feed on the grass under the trees shortly after spraying.

Finally, experience has proved that it pays to spray apple, pear, plum, and cherry trees, and that it is perfectly safe to do so.

Friend B., there is no special law that will touch the matter you mention; yet there are very plain laws forbidding one neighbor to poison the stock belonging to another; and I am pretty certain that one has no right to poison even trespassing stock. In this case it can be proven, I think, that there is no need at all of spraying the blossoms while the bees are at work. Will some of our bee-keeping lawyers enlighten us a little? If the matter is going to be complicated, perhaps we had better leave it with the Bee-keepers' Union.

WIRING FRAMES WITH POULTRY NETTING.

In GLEANINGS, May 1, there is quite a discussion about the proper mode of wiring frames; and I see Mr. Gemmell is in difficulty about his wiring. Allow me to suggest a remedy, although I do not use or believe I need wired frames. Why not put in your finest wire poultry netting? You see, by this plan you get both horizontal and perpendicular wires, or you can have all diagonal. It would be strong enough either way. If you do not care about trying it yourself, you might ask Mr. Gemmell to try it, and let me know the result the next time I see him.

Bees have generally wintered well here, owing to the mild winter. I winter mine in the cellar. I omitted removing entrance-blocks from a strong swarm in an 8-frame L. hive, but they squeezed one end of one block out so that one bee could crawl out at a time over the end of the block. The top was tightly sealed, but they came out all right.

Kintore, Ont., May 10, 1890. J. W. WHEALY.

Poultry netting is not made of small enough wire to be used in wiring frames; and even if it were, there would be no feasible method of fastening it inside of the frames, to say nothing of the difficulty of imbedding the meshes in the foundation.

NOT IN FAVOR OF THICK TOP-BARS.

I would not have a top-bar in my hives that is over ⅞ thick. Tuck and staple spacing would not suit me, as that would be a hindrance to handling frames. I have 30 stands of bees. I run my bees mostly for comb honey. I have never used a zinc honey-board in the ten years I have kept bees, and would not have one. I space my frames 1⅜ inches from center to center, putting in the number of frames desired. If that does not fill the body of the hive, I fill the space left with a division-board, then between the lower and upper story I am very exact in leaving just $\frac{5}{16}$ of an inch, and am not bothered with brace-combs nor queens going above.

I went into winter with 30 colonies on their summer stands, mostly in chaff hives, in fair condition. I have 30 at this writing, in good condition for surplus. I use a topless frame holding four sections, such as I buy of you, and I like them very much.

Akron, O., May 13. AMOS E. GRIFFETH.

The majority of those who have reported in regard to thick and thin top bars would not agree with you. We can not prevent brace-combs with ⅜-in. top-bar above, and we live only 20 miles from your locality. We

are glad to get your testimony in regard to section-holders.

THE MELTED-WAX PLAN OF PUTTING IN STARTERS; 25 TO THE MINUTE, AND 1200 PER HOUR.

I notice in GLEANINGS of May 1, a letter from Dr. C. C. Miller, giving his way of putting in starters. He says he can put in four starters a minute, and Emma can put in 14. I will give you my way of putting them in. I use a small iron pan, with a bottom about 5 in. across, and put enough wax in to cover the bottom about ¼ inch. I place the pan on the stove and let the wax melt. I take a board one foot wide and 18 in. long, and sit down close enough to the stove so that I can reach the pan conveniently, and put my sections on a pile (starter side) on the board, and the starters also. I put the board on my lap with starters next to me. I dip the edge of the starters into the hot wax, and then place it on my sections. The first minute I tried it I put on 20 starters; the next minute, I put on 25. I can put on 1200 in one hour, without any extra effort. I have a little girl and boy that lay them away after I get them on. I do not put the sections together until after the starters are on.

Muncy Sta., Pa., May 8. R. I. CROMLEY.

THE HOFFMAN FRAME, AGAIN.

I notice you inquire in GLEANINGS for May 1 "if there is any one else among your readers who has tried the Hoffman frame." I have used this frame for the past six years, and I find it far superior to any other frame, and I agree with Mr. Beebee in all the points he makes in regard to them.

My frames are the Langstroth size, with top-bars 1⅜ in. wide at the ends, and notched out ⅛ in. on each side between the end-bars, making them 1⅛ in. wide over the combs, so that, when they are placed in the hive, there is ¼ in. space between the top-bars, to allow bees to enter the super. For supers I use the T super with ¼-in. bee-space at the bottom, and place the supers directly upon the frames. No honey-board is required with this frame if the super has a bee-space at the bottom, as the top-bars act the same as a honey-board. This I deem a big point in their favor. I produce comb honey exclusively, and in my six years' experience with this frame, without honey-boards, I have had but one section in which brood was placed. When I first began to use this frame I had top-bars ⅜ in. thick; but I found the weight of the combs caused some of the frames to sag. I also noticed that, where the frames sagged, there were brace-combs built; and where the frames did not sag there were hardly any brace-combs. I then changed from the ⅜-in. to ½-in. top-bars; then the result was, there was no more sagging of frames, and almost no brace-combs.

LOUIS ANDERSON.

Bloomsbury, N. J., May 6, 1890.

Your testimony is valuable, and the more so, as it substantiates what others have said. So you can use T supers on these frames without a honey-board. That's good. Who else has tried these frames?

NO LOSS ON SUMMER STANDS.

I have to report 54 colonies in the fall, and 54 spring count. How is that for outdoor wintering in ordinary box-frame hives, and just as they stood on their summer stands, and, with one single exception, in good condition?

My bees have had so far too much honey from last year to raise enough brood. That is not room enough; nevertheless, the late, cold, and wet spring will give them ample time to use it all up before they get much from the fields. White clover is blooming earlier than common, with prospects good, when the weather settles. We had a light frost last Sunday and Monday morning, with heavy rains yesterday and to-day. FRANKLIN GARNES.

Kenna, W. Va., May 14, 1890.

AGAINST SELLING ON COMMISSION.

If the bee-keepers do not adopt some other method of selling their honey than sending it to commission men and letting them sell it for what the grocerymen want to give, they might just as well let their bees all die or kill them. As fine comb honey as you ever saw, linden, white as snow, put up in 2-lb. frames, sold last February for 8 c. per lb.; taking out freight and commission, netting the bee-keeper 5¾ cts. per pound. If the commission man had been instructed to sell it for 12½ it would have brought it. As soon as I can get time I will give the readers of GLEANINGS my method of selling honey, and how to get a good price for it, as I have always sold my own honey for the last forty years, and expect to if I live forty more. WM. URIE.

Minneapolis, Minn., April 28, 1890.

FROM 55 TO 115, AND 2700 LBS. OF HONEY, WITH A LOSS OF BUT TWO.

I started in the spring of 1889 with 55 colonies, with quite a per cent of them very weak. I increased to 115, principally by natural swarming. I obtained 2700 lbs. of honey, 2000 lbs. comb, and 700 lbs. extracted, all very nice white-clover honey, for which I realized from 15 to 20 cts. for comb, and 15 for extracted, wholesale. I started into the winter of 1889 with 115 colonies, with natural stores, no feeding, and came through with 115 up to March. I lost two in March, and two more proved to be queenless; the rest are in good shape, with a prospect of a good season in view. I wintered all on their summer stands, with sawdust cushions over brood-frames, in improved Mitchell hives, double-walled.

S. R. MORRIS.

Bloomingburg, O., May 10, 1890.

HOW AN UNTESTED QUEEN AND 1 LB. OF BEES DID.

I ordered 1 lb. of Italians, and an untested queen; but through your kindness you sent 2 lbs. of bees and a queen. As I told you in a letter, I put the 2 lbs. of bees into the hive in the greatest hurry, not thinking that, right after destroying the black queen, the blacks might destroy the new queen; and as it came to my mind that might be the case, I let the white sheet lie before the hive for about three days, to take a look every morning to find the dead queen dragged out of the hive, but could find no dead queen, so I did think all right.

By this time, and several weeks ago, I could see the young yellow-striped bees come out to try their wings for the first time in the nicest way. So I have turned the black cross colony into the most beautiful Italians.

The 1 lb. of bees and Italian queen I got of you last June are now a strong colony.

JOHN SLAUBAUGH.

Eglan, W. Va., May, 1890.

PROSPECT VERY POOR FOR HONEY SO FAR.

There are no material signs of swarming, and white clover is just beginning to bloom. It is still very cold, and we have had four frosts this month.

Yesterday, the 15th, was so cold that bees did not fly much. Bees are mostly in light condition. So far they have wintered well, but spring weather is very cold. WM. ST. MARTZ.

Moonshine, Ill., May 16.

HORIZONTAL WIRING; NO SAGGING OR BOWING OF COMBS.

I have been reading GLEANINGS with interest, and I have seen a great deal said about wiring —which is the best way—and I should like to say that I have been using the horizontal wires for about ten years, and most of the time only two wires; but I prefer it three wires, and I never have had any trouble with foundation sagging or bulging out. I think that the greatest trouble with foundation sagging is that the wires are not stretched tight enough. If the wire sags, the foundation must. As for tin bars, I have never used any. I have had no use for them; and as far as I can see, they are a bungling affair. I use the L. frame, and prefer it to any other that I have used.

MY HONEY CROP FOR 1889.

Comb honey, 1000 lbs.; 500 extracted. I commenced in spring with 30 colonies; increased to 45.

Fremont, Mich., May 16. SAMUEL BOYD.

BACKWARD WEATHER.

You will see by my report that we have lost pretty heavily in bees. These have mostly died during the last two months; and although we have been feeding some we did not watch them closely enough. It was warm here the greater part of the winter until February, causing the bees to fly a good deal, and consume considerable honey. For the last four or six weeks we have been having almost continual cold rains, which keep the bees confined to the hives when they should be gathering honey. A little more attention and feeding would have saved some that we have lost; but we dislike to inaugurate a regular system of feeding, and have been in hopes of sunshine. However, the most of our colonies are in fair to good condition; and the prospects for a big crop of honey are good, provided we get clear weather soon, as the white clover is in better condition than it has been for years past. S. E. MILLER.

Bluffton, Mo., May 18.

SELLING EXTRACTED HONEY; CANDYING A BAD FEATURE.

I have been selling honey in connection with maple sugar and syrup for six years, doing a successful business all through New England, but principally in Massachusetts. When I first commenced in the business I bought pure white-clover extracted honey; but experience soon taught me that white-clover honey would not hold trade, as it would soon become candied; and when I went around the next time I was politely informed that they did not care to buy brown sugar and pay a honey price. I would tell them that it was sometimes due to the action of the atmosphere, but I suppose they thought it was due more to my action than that of the *atmosphere*.

I saw I must make a change if I held my trade. I tried some orange-bloom honey, shipped from Florida, and found it to be the best yet. I have sold it for four years now, and where I sell it once I sell again. It will retain its liquid form two years or more. If we could only keep our white-clover extracted honey from becoming candied it would give general satisfaction; but until then the public will persist in saying they "knew it is more'n half sugar." E. U. FOSTER.

Waterbury Center, Vt., May 6, 1890.

NO LOSS IN WINTERING, AND PROSPECTS FLATTERING.

The outlook for bees in this locality is very flattering. Colonies are all strong, and all I have heard from have wintered well. I wintered 50 colonies on their summer stands, and did not lose one. All of them are as strong as they were last year the 12th of June. On the 14th of this month I had a new swarm. It was caused by feeding. There was little but willow in bloom at the time. It was never known to occur in this locality before.

Myrtle, Pa., May 19. E. A. PRATT.

DECOY HIVES, AND THE LAW CONCERNING.

It is my mind that this law was framed by bee-hunters, and presented to our legislature without consulting the bee-keepers. The law should be repealed, for, as I understand it, it does not even allow us to have an empty hive in our apiaries. I claim we should have the right to decoy our own bees as much as we can. Hunters and sportsmen have caused many laws to be made to the farmer's sorrow. Now, why not put this to vote, and see how many are in favor of repealing this law? I say, repeal it. E. S. ANDRUS.

Torrington, Conn., May 21.

VERY DRY.

The prospects are very poor for a good yield of honey. It has been so dry that there is no white clover, and it has been very cold since May came in. It is still cold, with hard frost at night, with frequent snowstorms. All fruit will be killed, and the bees have not worked a single day on fruit-bloom.

Minneapolis, Minn., May 20. WM. URIE.

SWARMING, AND LOTS OF WHITE CLOVER.

Bees commenced swarming on the 1st of May. Swarming is a month late. I have hived 15 swarms so far. I never saw so much white clover. Bees are working with a rush. I never saw such a large swarm. Your paper is just right for twice a month. G. B. CARTMELL.

Jackson, Tenn., May 19.

UNJUST DISCRIMINATION BETWEEN HONEY AND FISH IN FREIGHT RATES.

I should like to say, "Honey in Pails" is double first-class, while fish in the same kind of pails is fourth-class. This hurts me badly, for I have worked up a market for honey in 20-lb. wooden pails. It ought not to cost more to ship extracted honey in large wooden pails than comb honey in glass boxes. F. WILCOX.

Friend W., there are several reasons why railroads charge more for honey than for fish. The first is the value. If they spill or damage a pail of fish, it does not amount to very much compared with a pail of honey. Another thing, I suppose the reason why honey in wooden pails is rated higher than honey in boxes is because of the liability of being tipped over and spilled. If honey is put into pails having an absolutely tight cover, say something like syrup-cans, so they will not leak any side up, it should go at as low a rate of freight as any thing else put up in similar tin cans—that is, where the value is about the same as the value of

honey. Liquid paint, for instance, is a very large article of traffic, and it is put up both in tin pails and wooden kegs, and, if I am correct, honey can be shipped about as cheaply as paint. Very likely, however, the matter needs looking after.

MYSELF AND MY NEIGHBORS.

O thou of little faith! wherefore didst thou doubt? —MATT. 14: 31.

THERE are in this world lovable people, or, if you choose, lovable neighbors. There are also neighbors—just a few of them—who are *not* lovable. It is our duty to love them, nevertheless; for Jesus said, "Love ye your enemies." Doubtless most of you know people whose very presence seems to bring something pleasant and cheering. Every word they speak indicates faith, energy, go-ahead, and hopefulness. Some *writers* have a faculty of making their words so attractive that we like to read them and dwell on them. Their bright expressions we like to read over and over again. Well, of late I have been enjoying myself by reading over and over the words and expressions of Christ Jesus; and the more I read them, the more I love them. I am not a great *reader* of the Bible, and I doubt whether anybody ever sees me reading it more than a few minutes at a time Sometimes I read a chapter, but not often more than that at once. It used to trouble me somewhat because I did not like to read the Bible as some do. It is too much for me; that is, to read very much of it all at once. A verse or a part of a verse seems to be all I can manage or comprehend at one time; and sometimes a little bit of verse will last me several days. The more I dwell on it and think about it—the more I repeat it over and over—the more it becomes music to my soul. And especially do I delight in making it fit into the subject of conversation that is going on about me. One of the brightest little texts I ever got hold of is the one about which I am writing: "O thou of little faith! wherefore didst thou doubt?" Matthew, Mark, and John, tell us the little story about Jesus walking on the water. After feeding the five thousand, Jesus saw fit to tell his little band to get into a boat and cross the sea alone. He dispersed the multitudes, and sent his followers away, and then he went up into a mountain to pray. He told the little band to go to some point on the other side of the sea, or lake. The distance was so great, however, that they did not reach their destination before morning. Late in the night they had a contrary wind, and the little boat was tossed by the waves. By and by somebody was discerned in the darkness, walking on the water. No wonder they were afraid, and supposed it was a spirit, or something supernatural. They forgot all about the miracle of the loaves and fishes, and of the Lord and Master who was away, they knew not where. But he, in his loving kindness, very soon dispelled their fears and bade them "be of good cheer;" and then he added, "'Tis I; be not afraid." We can well imagine the relief they felt. Perhaps, notwithstanding his cheering words, however, they felt a little uneasy still. Our bold and impulsive friend Peter, however, was the first to recover, and grasp hold of the fact that there could be no *possible* danger while the Master was near. With his reckless daring and ready response he burst out with the words, "Lord, if it be indeed thou, bid me come unto thee on the water." I can imagine that the other eleven looked at him in open-mouthed wonder and surprise. Did anybody ever hear of such assurance? Perhaps not. But the Master was pleased. Why? Because it indicated faith—faith in his Lord; and if any thing ever pleased Jesus, and made him smile, it was perfect, unreserved confidence, not only in his *wondrous power*, but in his *loving kindness*. He replied, as you, my friend, may have said to one of the little ones of your household—one that is just learning to walk, for instance. We do not know whether the Master put out his hands to him or not; but he gave his permission, and encouraged him in the same simple word, "Come!" Most of us would have been very apt to back out, even then. Not so with Peter. Over the side of the boat he went, in a twinkling. Out upon the water he stepped with perfect faith, and safely stood and walked upon the yielding element. Had Peter's *faith remained* perfect, his *walk* would have remained safe and perfect also. But the wind was still boisterous; the waves were rolling and tumbling. Very likely he got dizzy, and then began to be afraid. He started out well, but he lacked *enduring* faith. He began to sink. He did not, however, turn back and grapple for the boat. We know he was a good swimmer, for on one other occasion he jumped out of the boat, and swam ashore to meet the Master. But he did not trust to his skill in swimming, on this occasion. As he began to go down in the water, we may suppose that he raised his hands imploringly toward the Master as he said, "Lord, save me." I wonder if it is not possible that Jesus smiled as he saw his fright. How often have I laughed outright in great merriment to see the little ones of our household, when I was giving them their first lessons in walking, become affrighted when there was nothing to fear!

Jesus was near enough so he actually reached out his hand and caught him. And then comes that bright, glorious, hopeful, happy, beautiful speech, the text I have said over and over so many times, and yet never tire of repeating: "O thou of little faith! *wherefore* didst thou doubt?" May I take the liberty of paraphrasing it a little? Didn't his Lord mean, even if he did not say, "Why, Peter, I am surprised at you. How couldst thou fear when thy Master was so near by? Why should my good friend Peter, who started out so well, so full of faith and ambition, and so full of perfect trust and confidence, become demoralized and affrighted simply because the winds and the waves were boisterous? Didst thou forget that, at my command, the winds and waves obeyed?" And that one word,

"wherefore," like a beautiful bar in a strain of music, as I repeat the text over and over, comes with wonderful beauty and power. It seems to say, "Where, in all your experience with me, have you found reason to be afraid? Have I ever failed, or have I ever been mistaken? Did you ever know me to call upon the elements of nature when they were not obedient to me? Where in all our past pleasant intercourse and acquaintanceship did you all together have reason for doubt or fear? Can you not trust me, my good, faithful, and devoted friend Peter? Can you not trust *me?*" Matthew tells us no more, but only adds that, when they were come into the ship, the wind ceased, and together they united in worship, saying, "Of a truth, thou art the Son of God." They soon landed, and then commenced the busy life again. When the men of that place had knowledge of him, they sent into all the country round about, and brought the sick and the diseased. And *now* we are told that they begged only for the privilege of touching the hem of his garment; and as many as even *touched* him were made whole.

And now, dear friends, is there not a practical application for us? Is not the great trouble, and the great lack of all humanity, in the same line of thought of Peter —"O thou of little faith"? Is not that *your* trouble, dear reader? It surely is *mine*. Jesus is near, and ready to help. And not one of us in all our past experience can say that we have trusted him in vain. A new railroad is coming through our town. Crowds of new people are already camping in the suburbs. At the dinner-table some one expressed a fear that this new element coming into our midst would be demoralizing to our community. I knew as well as they that there was *danger* in this direction; but yet, if it is Christ Jesus that we are trusting, have we any thing to fear? I smiled as I commenced my little text, "O thou of little faith! wherefore didst thou doubt?" A few weeks ago two good friends of mine had trouble. They are both professing Christians, but they talked hard, and I fear they did some things besides talking. With all my busy cares I felt a responsibility laid upon me. I must go to each of them—perhaps get them both together, and may be plead in *vain* for Christ Jesus the Savior. I feared it would not do any good. As we knelt at our bedside at night, I prayed earnestly that God would put it into their hearts to consider how wrong it was for them to cherish such feelings toward each other. I prayed that they might *each* feel moved to ask forgiveness of the other. What did I do next morning? Why, I went to one of them with a very sober, downcast face, and with a trembling voice commenced my task. To my surprise he laughed outright as he put his hand on my shoulder, and said, "Why, Bro. Root, we knew as well as you do that we were out of place as Christians, and we have made it all up, and fixed the things that made the trouble, so I think I can assure you it will never happen again." I opened my mouth in astonishment as my face softened into a smile, as I realized that I was relieved in this unpleasant task. *Then* I remembered the prayer of the night before, and the text stood out strong and clear before me—"O thou of little faith! After your earnest prayer last night, *wherefore didst thou doubt?*" As I look back and see the victories that have come from prayer, and the obstacles that have been overcome ever since I chose Christ Jesus as my guide, then it comes again, as I look in open-mouthed astonishment, and see what changes have been wrought through the name of Christ Jesus; and I say to myself fondly, "Wherefore! wherefore! *wherefore!* didst thou doubt?" A few weeks ago I stood on the brink of danger. I seemed, for the time being, changed over; some evil spirit had got a hold upon me. I once heard of a man who felt sure he could keep sober if he kept off from a certain street. On that street was a saloon that he knew from sad experience he was not capable of passing by. The tempter was too strong for him, if he even passed before the door. He avoided that street, and passed around, even though it cost him considerable additional travel when he was tired out and weary. But it was the safer way. And yet it was very *hard* to keep *away* from that street. Although he knew from past experience that it was dangerous, still he could hardly keep away from it. I think he was wise in doing so. I have been through a similar siege with the tempter. For many weeks, in my want of faith I rather concluded that the rest of my life would have to be passed in just that way—wearing myself out with *useless travel* just to keep out of *Satan's* way. When it occurred to me, however, to reach out in utter helplessness, as did Peter, saying, "Lord, save, I am utterly discouraged in trying to save myself, and have lost hope; save me or I perish"—when I got right *there*, like a flash of light the tempter, with all his machinery, gathered himself up and departed. There are no saloons at all now on that dangerous street; in fact, *there is no such street.* The shackles have fallen, and I smile to think of them now. The whole trouble was little faith. It was in Doubting Castle that I was imprisoned, and the key of promise was hidden in my bosom, *unused* because *I forgot I had it.* Years ago, when I knelt down by myself and uttered that first prayer to my Maker, "O God, if there be a God that cares for a poor helpless child to whom he has seen fit to give a place in this great universe, help me if thou carest for me"—when I uttered that prayer I could scarcely comprehend that Jesus could or would help one who did not help himself any better than I had been doing. I knew I was *bad* and *wicked*, but I had got it into my head and heart, that, *before* one prayed he must be *good.* I could not comprehend that there was any possible help for one who kept slipping back and yielding to temptation. When help came, and I felt a strong arm round about me, I was utterly astonished. It was a new experience, and a revelation too. And, dear friends, this experience and this revelation continually come up; and as I am helped out of one piece of miry

clay after another, I am astonished again. My faith seems to be continually settling back, notwithstanding all these victories. And this is why I so cling and hold on to this beautiful, bright little text of mine—"O thou of little faith! wherefore didst thou doubt?" And now, dear friends, in all this talk—in fact, in most of my talk for months back, I have been trying to impress the thought that there is help for *sinners;* there is help through Christ Jesus for those who feel themselves to be *helpless* sinners. A letter just at hand illustrates more fully what I mean. It comes from away down in Texas; but notwithstanding, it echoes the thought of many other poor souls scattered far and wide throughout the world. Please read:

Mr. Root:—I used to keep bees, and was once a reader of GLEANINGS. I was a good man once; but since my wife died I have become a drunkard. I have made promises, and broken them, until I don't believe the *Christians* here have faith enough in me to even pray for me; and the *sinners* don't like me now as they did when I had money to spend with them for whisky. I have a good old Christian mother, and I write to beg you to *help* her pray for me. I am a young man yet. I think there is still hope for me. By the help of God I won't touch any more whisky. Please pray for me. I would not write you this way, but I believe you are a good Christian. ——.

Texas, May 13.

I want to say, first, that my recent experiences have prepared me to have more charity for those like the writer of the above than I have ever had before. Our poor friend has written to me when utterly discouraged. We judge from his letter that he is almost on the point of giving up. There is something almost plaintive in his honest, frank confession. He does not beat about the bush, nor use polite words to tell the truth as it is. He says, "I have become a *drunkard*." Why, the very word sends a chill through one's veins. Of late it has become so customary to use some softer or more polite word, that we are startled when a poor sinner uses the term "drunkard." And he says, further, that he has made so many promises only to be broken that he hardly believes that the *Christians* around there have faith enough to pray for him. His money has gone, and his *companions* who are, like himself, *sinners*, are gone also. He is alone, and clear down to the bottom, probably. There is one poor soul, however, who still hopes and prays—an old Christian mother. But even her prayers, and thoughts of that pious mother, have so far been of little or no avail. He remembers his bee-journal and the Home Papers; and, as a last hope, he writes to me, begging a favor. The favor is, that I shall help this poor old mother *pray*. Oh how I wish I could be by her side for just a little while! How I should like to hear her tell me the sad story of her lost boy! "Lord, help!" wells up in my heart as I read the words. "Lord, help this poor soul struggling in helpless bondage. Help him as thou didst help me when I was a slave and in fetters. Help all who are in the fetters of sin; and, O Lord, hear this poor old mother's prayers, and help our poor friend in his *utter* helplessness. May he look up to thee, as did poor Peter when he said, 'Lord, save me.'"

Dear friends, I do not mean to say that Christ Jesus will or can help unless we come to him. You will remember that, in his own village of Nazareth, none were healed. The reason was, that nobody came to him asking to be healed. They hadn't even faith enough to *come*. And it is so with us. We must come to him. "Him that *cometh* to me I will in nowise cast out." If the writer of the above letter were invited to come to Jesus, and should refuse, and make excuses, there would be no help. If, however, in his utter discouragement and despair, he should come, saying, "Lord, help, for I have nowhere else to go," salvation is sure—that is, providing he holds to that attitude. Should he change his mood and reject the Savior, he is lost. "He that *believeth* on the Son hath everlasting life." Now, it is not enough to *say* that we believe. Words are well, but they must be the expression of the heart. What must the sinner do? He must from the heart say, "Lord, help," at every turn. When tried and sorely tempted he must from the bottom of his heart keep calling and begging for help. So long as he does this with an honest sincerity of purpose, and with an abiding faith, he is safe; and in a very little time he will come to look back, and smile to think of how little he could comprehend or understand what Jesus can and will do for those who trust him. He will smile as the wondrous truth bursts in upon him in the light of the beautiful words of my little text. I say *my* little text, for I have been making it mine; but, dearly beloved reader, let me give it to *you* that *you* may make it *yours:* "O thou of little faith! wherefore didst thou doubt?"

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

REDEEMED FROM BONDAGE.

I have been a slave to the filthy habit for about 25 years. One year ago last November I quit chewing and went to smoking, and the latter was the worse of the two habits. Last August I attended a revival meeting, and became deeply convicted of my sins, especially in regard to the way I was raising my family, and the example I was setting before my boys (I was a backslider). I resolved to "return to my father's house" again, and seek salvation. Oh the joy and comfort it gives one to

know that he is freed from sin and evil habits! I smoked but once after I was converted. The second time I filled my pipe I was condemned, and those words came into my mind, "Cleanse yourselves from all filthiness of the flesh." Pipe, tobacco, and all went into the stove; and, God being my helper, I will never be found guilty of the habit again. About that time my wife was reading GLEANINGS, and she said, "Listen; A. I. Root offers to give a smoker to any one who will quit the use of tobacco." I said, "Amen! I want to sign a pledge of that kind. I want the world to know that God has power on earth to cleanse his children from all unrighteousness, if we only put our trust in him." Go on, Bro. Root, sowing seeds of righteousness. May God bless you, is my prayer. My wife says, if I ever commence the use of tobacco she will send you the price of the smoker.

Glenwood, Iowa. DANIEL BARBEE.

May God be praised, friend B., for your bright, clear, unconditional surrender; and especially do I commend your willingness to stand out before the world, making your retreat so sure that you can not go back, even if you would. And I am glad, too, to hear the good wife say that, if you ever begin the use of tobacco again, she will report, even if you should backslide so far as to incline to neglect it.

A MINISTER OF THE GOSPEL WHO IS KILLING HIMSELF WITH TOBACCO.

We have a minister here who is a member of our conference, and who is killing himself by smoking tobacco. We are taking pledges from him to quit; and as we all read (my) GLEANINGS, your most excellent magazine, and among them the pledges, I promise to send you the price of a smoker if he returns to it again. Send it to my address at once, and I will deliver it. M. K. LITTLE.

Fort Worth, Texas, March 2.

WHAT A LAWYER THINKS OF TOBACCO.

I have induced my boy, Wm. Lucas Dillard, to quit the use of tobacco, offering, as an incentive, your offer of a smoker. I tell him that, if a stranger, who perhaps will never meet him this side of the ultimate tribunal, can so deeply feel for the follies of youth, there must be something vitally and radically wrong in the abominable practice of tobacco chewing and smoking. My boy has a manly sense of duty; and if he puts himself voluntarily under obligations to do something, I'm sure nothwill divert him. H. M. DILLARD.

Meridian, Texas, May 6.

GOING SECURITY.

There is a young man, a neighbor of mine, who is reading my GLEANINGS. He keeps bees, and says that, if I will get him a smoker, he will dispense with tobacco entirely. Send the smoker; and if he ever uses the weed again I will pay for the smoker. His name is Burt Jenkins. F. H. KUNKLE.

Camden, Mich., April 30.

TAKING THE PLEDGE AFTER HE HAS STOPPED A MONTH.

Please send a smoker to A. J. Foster, Winthrop, Iowa. I will pay for the smoker if he ever smokes again. He has stopped smoking now for a month. Of course, Mr. Foster understands that he is never to use tobacco in any form, and this is right.

Winthrop, Iowa, Mar. 24. E. P. BRINTNALL.

A HUSBAND WHO HAS QUIT.

M. C. Hays has quit the use of Tobacco. You will please send him a smoker. If he ever resumes the use of tobacco, he promises to pay for the smoker.

MRS. M. C. HAYS.

Temperance Hall, Tenn., Apr. 21.

SECURITY FOR ANOTHER.

A friend of mine has promised to stop using tobacco if you will send him a smoker. If you will send one, and he ever uses tobacco again, I will pay for the smoker. I never used tobacco, and I thank God that I never formed that habit.

McKean, Pa., Apr. 4. D. E. PORTER.

YOUNG MEN TAKING WARNING IN TIME.

I take pleasure in reading your Tobacco Column. It is gratifying to see so many young men take warning while on life's meridian. Mr. L. W. McGuire has broken from the useless tobacco habit for seven months, and desires a smoker. He pledges that, if he ever uses any again, he wil pay for the smoker. G. W. MCGUIRE.

Dark Ridge, N. C., Mar. 14.

A BOY WHO HAS FOUND A BETTER USE FOR HIS MONEY.

I am a boy 17 years old. I have been in the habit of using tobacco some, but am trying to live a Christian. I have concluded to do without it, and that I can put my money to better use, and feel better over it. Please send me the smoker; and if I should use tobacco any more, I will pay you for the smoker. BERTIE S. EVANS.

Mendon, Mich., May 9.

QUIT AFTER 12 YEARS.

I have received GLEANINGS 7 years, and have concluded to quit the use of tobacco. I have used it twelve years. If I am entitled to a smoker, please send with other goods. If I use the weed again I will pay for smoker. J. H. KLINE.

Wooster, O., Apr. 18.

IS INDUCED TO TAKE THE PLEDGE THROUGH THE INFLUENCE OF THE TOBACCO COLUMN.

Through the influence of the Tobacco Column I have made up my mind to quit the use of tobacco. I have used it for five years off and on. You can send me a smoker, and if I should resume the use of it again I will pay for the smoker.

Wayville, N. Y., Mar. 26. O. C. ABEL.

A FRIEND GOING SECURITY.

Please to send me a smoker. I have a friend, D. F. Stewart, who has quit the use of tobacco, and agrees that, if he uses it again in any manner whatever, he will pay you the sum of $1.00 for the smoker, God being his helper to enable him to quit using the weed. And I promise to see that he fulfills his contract. G. F. TYLER.

Honey Grove, Tex., Apr. 25.

TWO PLEDGES.

In reading GLEANINGS I feel as if we were old acquaintances, and without it we should be lost. I hope that it will be weekly soon. I promised an old uncle of ours that, if he would quit chewing tobacco, I would get him a smoker; so he quit on the first day of this year, and says he will never use it again. If he breaks over I will pay for the smoker. His address is V. B. Lindsy, Nebraska, O. I have taken the pledge too; and if I ever break it I will pay double price for it. J. N. RILEY.

Washington C. H., Ohio, Mar. 5.

The Tobacco Column for this issue, as the friends will observe, is, a great part of it, going security for some friend or relative; and this is exactly what we want. In fact, I should much prefer having the pledges given in this way. We wish the one who pledges himself, however, to be a subscriber to GLEANINGS. The one who gives up using tobacco need not necessarily be a subscriber himself. In all cases, however, his own good will depend very much on GLEANINGS being well circulated in his own neighborhood. The second one who takes the pledge is a minister of the gospel. One of his people agrees to deliver the smoker, and be responsible. May the Lord bless and strengthen this minister.

EDITORIAL.

Lord, save us: we perish.—MATT. 8:25.

WE have at this date 9931 subscribers.

CONVERTING COMMON FRAMES INTO HOFFMAN FRAMES.

ON page 425 Ernest speaks of this arrangement as if it were new. It is new to him, but the same thing was recommended and tried before GLEANINGS had an existence. It was given in the *American Bee Journal;* but I believe that those who tried it afterward pried off the strips and threw them away. Present needs, however, may make a difference.

BEE-CRADLES.

SOME years ago, before our present proof-reader and translator was here, we received a letter from a friend in Germany. As it was written in the language of that country, we sent it to a linguist to translate. It so happened that the translation came back with the word "bee-cradle." It was very easy for us to guess that, instead of bee-cradle, our German friend meant "queen-cell." We had forgotten all about the circumstance until we just received a letter written by a German friend in Missouri, he writing in French. Being more or less familiar with the German idiom, he sent an order for a lot of "bee-cradles," as large as a certain piece of paper. Our proof-reader studied all the way to dinner and back again as to what "artificial cradles" might mean, as he had never used any other, and yet he had never seen Mr. Warner making any in the saw-room. Finally the incident related above came to his mind, and he then concluded that our friend wanted *foundation.* This shows the difficulty in translating the technical meaning of a word when it is used in its common acceptation. Quite likely many passages in the Bible which seem so incomprehensible are owing to the fact that the translators spoke of "cradles" when "honey-comb" was meant.

SELLING SECRETS FOR MONEY.

A GREAT number of communications have been received in regard to the revival of the water-cure treatment. We have space for only two of them, and I wish to give these two because they illustrate so forcibly how it is that good earnest Christian people may differ so widely in opinion. Here is the first:

FRIEND ROOT:—In my last GLEANINGS I see an article by you about A. Wilford Hall's great discovery. The true Christian, like his Master, is ever ready to help all of God's children in every way in his power. I know some, like yourself, who have signed the pledge very reluctantly, and some who said they could never sign it, though it should be the means of saving their lives, if they could not impart to others that which has been a blessing to them.

Yours in the cause of blessings for the world.

Sulphur Grove, O., May 20. S. J. ARNOLD.

Thank you, friend A., for your very kind words. I think we all agree with you, at least in the main.

The next is from one of those very ministers of the gospel who have given their names to Dr. Hall, to help him advertise:

BRO. ROOT:—I received GLEANINGS to-day, and was surprised to see an article in reference to Dr. A. Wilford Hall's remedy for curing disease without medicine. What hurt me all over, and down in my soul, was that you say I ought to be ashamed of myself for indorsing the remedy. I have been trying to preach the old, old gospel of Christ about fifty-five years, and I am not aware that anybody ever before said I "ought to be ashamed" of something I had done. In my indorsement, which you can find in the Microcosm, I stated I would not quit the practice for the half of Texas, and I repeat here that I would not. I have been using it about eight months, and, humanly speaking, it saved my life. If the doctors knew of this, why did they not charge me for a prescription and tell me it would cure me? Dr. Hall admits the remedy has been known to some extent, but never in its application, as he has revealed by his own experience of forty years ago. I must say I think you are slandering him. I feel sorry to have to write to you in this way, but I could not satisfy my mind without doing it. If you had been in the spirit in which you mostly write, I am very doubtful about your writing any of the article. Our business relations have been very satisfactory, and I wish you every good; but I think you have made a mistake. I remain yours very respectfully,

Luling, Tex., May 22. S. C. ORCHARD.

Dear brother, I can not for a moment doubt the kindness of your heart, or in the least the honest sincerity of your motives; still, I think you are making a mistake. The editorial you allude to was written by your old friend A. I. Root himself, and I think that no motive but love to his fellow-men prompted him to write it. No doubt you have been greatly benefited. You are full of enthusiasm in regard to the plan, new to you, of treating disease without medicine. Are you sure that you consulted a physician in regard to your poor health, and stated to him exactly where you thought the trouble lay? Perhaps our physicians have been remiss. Doctors, and others who have much to do with humanity, are used to these sudden excitements in regard to certain things that come up. Very often it is a revival of some old thing, and sometimes it is really some new development; but, dear brothers, all of you, shall we not keep in sight that grand truth once uttered by Gamaliel when he said, "If this counsel or this work be of men, it will come to naught; but if it be of God, ye can not overthrow it"? Meanwhile the testimony of our best doctors, ministers, and professors in our colleges, will say unmistakably that selling secrets for money, in answer to broadcast advertising, is certainly not only wrong, but it is not up with the spirit of the age and of our American institutions. The man who does it has a bad heart. I am well aware that Dr. Hall gives his pamphlet to ministers of the gospel, free of charge; but, dear friends, is not this whole custom wrong, and bad in its tendency, giving ministers certain things with the understanding they use their influence to get people at large to buy? A great many pastors of churches refuse to receive any thing at less than the price charged other people, in order that they may never be accused of having selfish motives in what they advise. Our good friend Terry recently refused to receive a potato-digger as a gift. He insisted on paying the same price that others do, so that he might, when writing through the agricultural papers, express an unbiased opinion either for or against it.

THE NEW YORK STATE BEE-KEEPERS' ASSOCIATION HAS gotten out a very neat and nicely printed report of its 21st annual meeting, held at Rochester, Feb. 6, 1890. A copy of the same can be furnished by the secretary, Mr. George H. Knickerbocker, Pine Plains, N. Y.

PROSPECTS GOOD.

ALTHOUGH the rains have been rather excessive and frequent throughout the country, the prospects are generally good. White clover is reported everywhere as doing finely; and if we do not have rain or cold through the time it yields nectar, there will probably be a pretty good yield from this source.

BEE-KEEPING FOR PROFIT.

THIS is the title of a pretty little work by Dr. G. L. Tinker, of New Philadelphia, O. It is nicely printed, and well arranged. Each topic is put in big black type, for the convenience of the reader. It details Dr. Tinker's new system of management in connection with the new hive. Price 25 cents, postpaid. Address the author, as above.

BEES AND HONEY.

THIS work, by T. G. Newman, has just been revised. It has been largely re-written, and is fully up with the times. It contains 200 pages, and is well and fully illustrated. Of course, being published by T. G. Newman & Son, its typographical appearance and binding are par excellent. It is written in Mr. Newman's vigorous style, and fills an important place in bee-literature. Price $1.00, postpaid. We can furnish it if desired.

MANUFACTURED SCIENCE, AGAIN.

THE *Pharmaceutical Era*, of Detroit, Mich., for May 1, contains a brief summary of Mr. Allen Pringle's article which appeared in the *Popular Science Monthly*, as above. After quoting Prof. Wiley's statement in the *Popular Science Monthly* for 1881, to the effect that "commercial honey is entirely free from bee mediation, made of paraffine filled with glucose by means of appropriate machinery," and after quoting his lame apology seven years afterward, to the effect that he repeated "this statement more in the light of a pleasantry than as a commercial reality," and that he does not believe it possible to imitate comb, etc., the editor says: "If the latter gentleman did not at the time, and does not at the present believe in the existence of a manufactured honey, as his last-quoted statement above would seems to indicate, he certainly owes it to himself and the chemical fraternity in general to offer a satisfactory and sweeping retraction."

Yes, sir, he certainly has owed it ever since 1881 to himself and to the chemical fraternity, and also to the bee-keepers all over the land, to offer a satisfactory and sweeping retraction. Prof. Wiley is certainly put in a very bad light in scientific circles. The only thing he can do now is to offer an humble apology and sweeping retraction. A scientific man in his position in the government ought to be ashamed of himself for all these years of silence. We are very glad that Mr. Pringle has shown him up in scientific circles in the vigorous manner he has. The editor of the *Pharmaceutical Era* closes up with this paragraph:

"As the matter involves primarily the integrity of a well-known scientist, and, secondarily, the reliability of important methods of chemical analysis, it is to be hoped that it will receive the careful attention of chemists."

We trust this matter will now be taken up and circulated over the country; and that the pressure will be so great upon the professor that nothing but a satisfactory and sweeping retraction and apology will be forthcoming.

YELLOW BANDS; BEAUTY VERSUS UTILITY.

ONE of our subscribers, Mr. Jacob T. Timpe, of Grand Ledge, Mich., sends us some yellow-banded workers. It is proper to say, however, that these bees show the characteristic Cyprian shield at the base of the thorax, and probably have a large percentage of Cyprian blood, although our friend said they were very gentle. Cyprian bees show wider yellow bands, and are more inclined to show the fourth band, than are the ordinary pure Italians. Since our editorial on page 378, in our last issue, our apiarist reports some four-banded bees in our own apiary. By looking up the record we find that the queen came from Mr. W. P. Henderson, of Murfreesboro, Tenn. Mr. H. is breeder of nice queens, and a fancier of yellow bees. We hope that our friends, in selecting for color, will not overlook the matter of utility. Perhaps we can have beauty and utility combined. There are several desirable qualities which we should like to have in our bees; and these might be stated in the order of their value thus: Good workers; non-swarmers; hardiness; gentleness, and beauty. What we want *most* is bees that will secure large yields of honey when others at the same time will be getting but a small yield; and if beauty can be hitched on too, we shall not, of course, object. But there is a little tendency to overlook working qualities for golden yellow bands. In fowls, beauty and business often go together. The writer (E. R.) has some White Leghorn hens "over home" that lay eggs *every day*, Sundays included, week after week. They haven't time to sit; and are there any prettier hens than White Leghorns? Now, then, can the bee-fancier do as well as the poultry-fancier?

PRICE LISTS RECEIVED.

The following parties send us their price list:
J. B. Kline, Topeka, Kan.
J. C. Sayles, Hartford, Wis.
F. C. Erkel, Le Sueur, Minn.
B. P. Barber & Son, Colebrook, O.
J. B. McCormick, Fredericksburg, O.
G. H. Knickerbocker, Pine Plains, N. Y.
Martin & Macy, North Manchester, Ind.
M. A. Williams, Berkshire, N. Y.; calendar style.

ALBINO QUEENS.

I will furnish pure queens of this gentle and beautiful race of bees this season at the following prices: Extra select tested, $1.50; Warranted, 75c.
JOSEPH MOSER,
Festina, Wineshiek Co., Iowa.

J. W. Taylor has Fine Albino and Italian Queens
That he will sell as cheap as the cheapest, and guarantee safe delivery.
J. W. TAYLOR, - - OZAN, - - ARKANSAS.

JAPANESE BUCKWHEAT
75c Per Bushel; 17c for Bag.
Warranted pure seed; 10 bushels or more, 70c.
W. D. SOPER, Jackson, Mich. Box 1473.
In writing to advertisers please mention this paper.

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125 COLONIES ITALIAN BEES AT BOTTOM PRICES. A. F. BRIGHT, Mazeppa, Minn. 7tfdb

ITALIAN QUEENS AND BEES!

The very best honey-gatherers. Untested queen, 80c; tested, $1.00; select, $1.50. Bees, $1.25 per lb. Satisfaction guaranteed. Send for price list.
8-10-12d C. M. HICKS, Fairview, Wash. Co., Md.
☞In responding to this advertisement mention GLEANINGS.

SPECIAL CROPS.

A magazine for advanced agriculturists; 25 cts. per year; sample 7 cts. Also, Black Minorcas, B. Leghorns, and S. Wyandottes; eggs of either, per setting, 75 cts.; 26 at one time, $1.00. 4-50d
C. M. GOODSPEED, Skaneateles, N. Y.
☞In responding to this advertisement mention GLEANINGS.

BEES **SEND** for a free sample copy of the **BEE JOURNAL** — 16-page Weekly at **$1** a year—the oldest, largest and cheapest Weekly bee-paper. Address **BEE JOURNAL, Chicago, Ill.**
16tfdb
Please mention this paper.

IF YOU ARE IN WANT OF
BEES or BEE-KEEPERS' SUPPLIES,
Send for our New Catalogue.
9tfdb **OLIVER HOOVER & CO.,**
Mention this paper. **Snydertown, Pa.**

4-FRAME NUCLEI, Tested Queen, Brood, and plenty of Bees, Italians, for $3.50. Imported queens, $4. W. A. SANDERS, Oak Bower, Hart Co., Ga.

ITALIANS For pure Italian bees and queens, and directions to Italianize common bees, address F. H. & E. H. DEWEY, 55 Mechanic St., Westfield, Mass.
Please mention this paper.

That Hundred-Dollar Queen.

$1 will purchase a daughter of this wonderful queen. Descriptive circular free. Address
9tfdb AM. APICULTURIST, Wenham, Mass.
Please mention this paper.

Ho! Ye in Dixie Land!
LEARN SOMETHING NEW
Of Interest to You in my New 1890 Catalogue

Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in *TEXAS*.
Southern Bee-Keepers, Send for it NOW.
J. M. JENKINS, - Wetumpka, Ala.
Please mention this paper.

DADANT'S FOUNDATION
ADVANCES THIS DATE, 3c, WHOLESALE AND RETAIL.

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,
REVISED.
The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.
Bee-veils of Imported Material, Smokers, Sections, Etc.
Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.
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AFTER HIAWATHA.
BY SECOR.

HO! ye gleaners after knowledge
In the field of apiculture,
Stop a moment, please, and read this,
Stop and read this advertisement.
Send and get my creamy MONTHLY,
(I will send three samples gratis)
It contains the views of leading
Bee-men on some special topic;
Points out errors; makes you ponder,
And abandon wrong ideas.
If you'd march with those who "get there,"
Send your stamps to "Hutch the hustler"—
Fifty cents per annum only;
Twelve REVIEWS for only fifty.
Address BEE-KEEPERS' REVIEW,
W. Z. HUTCHINSON, Ed. & Prop. Flint, Mich.
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DO YOU WANT QUEENS

If so, see Moore's "ad." in April 1st and June 1st Nos. A lot of fine queens ready to mail.
J. P. MOORE, Morgan, Pendleton Co., Ky.

THE BRIGHTEST

Five-banded, golden Italian Bees and Queens, and the **Reddest Drones.** Very gentle; very prolific; good honey-gatherers—working on red clover—and the **Most Beautiful** bees in existence! Took 1st premium at Michigan State Fair, in 1889. Reference, as to purity of stock, Editor of *Review*. Sample of bees, five cents. Untested queens, $1.00. 6 for $5.00. Tested (*at least* 3 bands), $2.00; selected, tested (four bands), $3.00; breeding queens (4 to 5 bands), $6.00. Virgin queens, 50 cents; 5 for $2.00. Safe arrival and satisfaction guaranteed.
JACOB T. TIMPE,
8-15db **Grand Ledge, Mich.**
☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

WANTED.—To exchange Columbia tricycle for bee supplies. S. G. KILGORE, London, O.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange one Green's solar wax-extractor, *new*, for an incubator or Italian queens. G. C. HUGHES,
6tfdb Pipestem, West Va.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange for sections, fdn., honey, or offers, an American fruit-evaporator, No. 2; capacity, 10 to 12 bu. apples per day. For description of evaporator, write to American Mfg. Co., Waynesboro, Pa. O. H. HYATT,
9tfdb Shenandoah, Ia.

WANTED.—To exchange one or more finely bred Scotch collie (Shepherd) puppies, for Italian queens, or supplies.
1-12d F. W. GEORGE, Williamstown, Iowa.

WANTED.—To exchange photo outfit for Root's chaff hives in flat, or safety bicycle.
F. SHILLING, Jewett, Ohio.

WANTED.—Parties with capital to establish the manufacturing of bee-hives and supplies. Have already nice growing trade established. Can be largely increased by manufacturing. "References." J. B. KLINE, Topeka, Kan.

WANTED.—Italian queen for a sitting of White Minorca eggs. MISS SARAH SHAW.
Stockholm Depot, St. Lawrence Co., N. Y.

WANTED.—To exchange Japanese buckwheat for Green's solar wax-extractor.
R. ROBINSON, Laclede, Ill.

Black and Hybrid Queens For Sale.

Hybrid queens for sale, 25c each. Black queens, 20c each. C. C. KIRKMAN, Redallia, Pitt Co., N. C.

Mismated Italian queens, 25c each, and blacks, 20c. Safely delivered.
W. G. HAYEN, Pleasant Mound, Ill.

J. W. Taylor has 12 or 15 hybrid and mismated Italian queens that he will sell for 25c each, or five for $1.00, or $2.25 per dozen.
12-15db J. W. TAYLOR, Ozan, Ark.

For sale, 25 to 40 hybrid queens, good layers (wings clipped), at 25c each, as they come; 40c for the best. M. LUDTMAN,
Hannibal, Monroe Co., Ohio.

Black queens, 20c; hybrid, 35c; mismated Italians, 50c. Stamps for pay.
J. A. BUCKLEW, Warsaw, Coshocton Co., O.

For sale—25 black and hybrid queens for 25 cts. each, if a ready-provisioned cage is sent with order. Age unknown, but will send none but prolific ones.
J. W. SMITH, Moscow, Lamoille Co., Vt.

Hybrid queens at 30c each, as long as the supply lasts. GUSTAVE GROSS, Milford, Wis.

IT BEATS ALL!

Italians, 60c, hybrids, 50c per lb., and a queen with every 7 lbs. bees. Order quick.
W. E. YODER, Lewisburg, Union Co., Pa.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE--FINE PROPERTY

With 8½ acres of land, and apiary of 100 colonies of Italian bees, fixtures and all. Address for particulars. LOUIS WERNER, Edwardsville, Ill.
☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN APIARY FOR SALE!

My Carniolan apiary must be sold at once, to allow me to move to Colorado Springs.

"You have the best Carniolans in the country."
H. ALLEY.

Select imported queen, $5; or untested queen, $1; untested, ½ doz., $5; 1 lb. bees, $1; 3-frame nucleus, $2.50; full colonies, in 1-story Simplicity 9-frame hive, $5; add price of queen you want. Queens by mail, others on board cars here by freight or express, as ordered. Remittance of currency, bank draft, or money order must accompany all orders.

S. W. MORRISON, M. D.,
12tfdb **Oxford, Chester Co., Pa.**
☞In responding to this advertisement mention GLEANINGS.

ALBINO QUEENS.

I will furnish pure queens of this gentle and beautiful race of bees this season at the following prices: Extra select tested, $1.50; Warranted, 75c.

JOSEPH MOSER,
Festina, Wineshiek Co., Iowa.
☞In responding to this advertisement mention GLEANINGS.

CHENANGO VALLEY APIARY.

Please give me your orders, and try my fine yellow Italian queens; are from imported stock, well known to my customers. Send for circular

Two-frame nucleus, with queen, in June, $2. Tested queen, $1.50; untested, $1.00. 8tfdb
MRS. OLIVER COLE,
Sherburne, Che. Co., N.Y.
☞In responding to this advertisement mention GLEANINGS.

50 COLONIES OF ITALIAN BEES for sale, in Langstroth hives, at $5.00 per colony.
8-9-10d JOHN GRANT, Batavia, Clermont Co., Ohio.
In writing advertisers please mention this paper.

ITALIAN QUEEN BEES
At 75 Cts. Each.
Pure and First-Class.

I have bred Italian queens 25 years, and am now breeding from the best stock I ever saw. Please try one. **E. D. ANDREWS,**
North New Salem, Mass.
☞In responding to this advertisement mention GLEANINGS.

BEES AT BUYER'S RISK; 50c PER LB.
J. J. HARDY, Lavonia, Franklin Co., Ga.

HONEY-EXTRACTOR FOR $5. Almost new. W. C. MARTIN, Ashley, Del. Co., O.

COMB FOUNDATION AND BEESWAX ADVANCED.

We are compelled again to advance the price of comb foundation, because of the advance in beeswax. This has been slowly increasing in price for two years past, with slight fluctuations. We have to pay now, on an average, 7 to 8c. per lb. more for wax than we did two years ago. We dislike to raise prices, and have been holding off, working on smaller margins, hoping wax would go no higher; but it is impossible longer to sustain our catalogue prices. We will pay for average wax, delivered here, 27c. cash, 30 in trade, and the same will be sold at 33c. per lb. for average, and 38 for selected yellow. Price of all grades of comb foundation is advanced 8 cents per pound over January prices, taking effect June 15.

A. I. ROOT, Medina, Ohio.

MISMATED QUEENS.

Having bought up a few hybrid colonies which we desire to Italianize, we offer for sale some 18 or 20 hybrid queens. To get rid of them early, we will sell them for 50 cents each until disposed of. Some of the queens produce almost *all* three-banded bees, and their colonies might be pronounced almost pure Italians. As there are occasionally some two-banded bees among them, we will offer them at the price of other hybrids; but at this price we can not pick out those queens having the most Italian bees. You will run your chance of getting very nearly pure Italians at these prices.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

MILWAUKEE.—*Honey.*—The market here for honey is in a fair condition. Old stock getting out of sight, and value being sustained on choice qualities. Quote white 1-lb. sections, choice, 13@14; 1-lb. medium, 11@12; dark, 9@10. Extracted, bbls. and half-bbls, 7@8; dark, 6@6½.—*Beeswax*, 26@30.
June 3. A. V. BISHOP, Milwaukee, Wis.

CHICAGO.—*Honey.*—Selling very slowly at present, as there is very little in 1-lb. sections on the market that is at all desirable; then the small-fruit season accompanied by hot weather, usually causes a lull in the honey-trade. The amount of honey on market is now less than at any corresponding time in 7 years. Choice brings 13@14; off, 10@12; dark, 10.—*Beeswax*, 27@28.
June 8. R. A. BURNETT, Chicago, Ill.

KANSAS CITY.—*Honey.*—The receipts of old crop of comb honey have been quite liberal the last two weeks. Demand lighter, dealers buying only case at a time. We quote: 1-lb. white comb, at 13@14; dark, 10@12. Extracted, very slow sale; white, at 5@6. Dark, at 5.—*Beeswax*, none in market.
June 4. CLEMONS, CLOON & CO., Kansas City, Mo.

ST. LOUIS.—*Honey.*—The season is well over on old honey, and is early for new to be ready for the market. Choice white clover, comb, 12½; common to fair, 8@10. Extracted, choice, 7c; fair, 5@5½, in can.—*Beeswax*, 27@28. W. B. WESTCOTT & CO.,
June 9. St. Louis, Mo.

DETROIT.—*Honey.*—Not much desirable honey left in the market; it is selling slowly at 10@13 cts. Extracted, 7@8.—*Beeswax*, 27@28.
June 9. M. H. HUNT, Bell Branch, Mich.

CINCINNATI.—*Honey.*—Demand for comb honey is slow, and prices nominal. There is but little on the market. Extracted honey is in good demand, and brings 5@8c on arrival, according to quality. We bought to-day the first 4000 lbs. of new choice extracted clover honey.—*Beeswax*, there is a good demand at 24@28 for good to choice yellow on arrival. CHAS. F. MUTH & SON.
June 10. Cincinnati, O.

ST. LOUIS.—*Honey*—We have sold the first arrival of new crop of extracted honey at 7½c. Market quiet.—*Beeswax*, prime, in demand at 27.
June 10. D. G. TUTT GROCER CO., St. Louis, Mo.

BOSTON.—*Honey.*—No change in prices. Honey sales very slow. We have recently received a shipment from Michigan, very fine stock, which is an ample supply for us for the summer.
June 11. BLAKE & RIPLEY, Boston, Mass.

Rheumatism * Bees.

No doubt the best bees for curing rheumatism are pure-bred Italians that prove to be good workers and work on red clover.

We have such if you want good stock to work with and to secure you plenty of honey.

Tested queens in May, - $1.50; in June, - $1.25
Unt'd " " " - - 1.00; 3 for - - 2.50
" " " June, - 75; 3 for - 2.00

For wholesale prices, nuclei, lbs. of bees, and all kinds of bee-supplies, write for our 16 p. circular.
9tfdb **JNO. NEBEL & SON, High Hill, Mo.**
Mention this paper.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address
R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.
☞In responding to this advertisement mention GLEANINGS.

Bee-Keeping for Profit

IS THE TITLE OF

Dr. Tinker's New Hand - Book.

It gives his **New System** of the management of bees complete, telling how to get the largest yields of comb and extracted honey, and make the industry of bee-keeping a profitable one. The claim is made that our old methods and appliances are of such a nature that it does not pay even the expert bee-keeper to keep bees except in very favorable localities. The New Book tells why these failures occur and how to prevent them, giving the general principles essential to a profitable system. The work should be in the hands of every progressive apiarist. It is well illustrated, and will be sent to any address postpaid for 25 cts. Please remit by postal note. Address
DR. G. L. TINKER, New Philadelphia, Ohio.
Please mention this paper. 10tfdb

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. **THOS. G. NEWMAN & SON,** 246 East Madison Street, - - CHICAGO, ILLS.
☞In responding to this advertisement mention GLEANINGS.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.
J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.
☞In responding to this advertisement mention GLEANINGS.

HEADQUARTERS IN THE SOUTH.

FACTORY OF BEE-HIVES, ETC.

From now on I will sell my 4-frame nuclei, with Italian queen, at $3.75. In lots of 5, at $3.50 each. Untested queens, at $9.00 per dozen in June; $8.00 per dozen in July. Satisfaction and safe arrival guaranteed. Twelfth annual catalogue.
9tfdb **P. L. VIALLON, Bayou Goula, La.**
Please mention this paper.

Bee-Keepers' Supplies.

WHY ✣ SEND ✣ LONG ✣ DISTANCES?

SEND NAME ON POSTAL CARD FOR MY NEW PRICE LIST TO

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.

Formerly of St. Joe Sta., Butler Co., Pa.
ESTABLISHED IN 1884. 9tfdb
Please mention this paper.

SECTIONS, $3 PER 1000. Foundation, Alsike clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our FREE PRICE LIST. **M. H. HUNT, Bell Branch, Mich.**
Please mention GLEANINGS. 1tfdb

MUTH'S HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS, TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.

PERFECTION COLD - BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON, Cincinnati, Ohio.*

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

FOLDING PAPER BOXES.

CRAWFORD'S SECTION CARTONS ARE THE BEST.

Send for free sample and price list, and find out the reason. A certain fact has come to our knowledge that is worth dollars to *you*. Send for it.

A. O. CRAWFORD, S. Weymouth, Mass.

12tfdb Please mention this paper.

Attention Bee-Keepers!

Our one-piece V-groove section is made of the whitest basswood, and is guaranteed to have no superior in quality or as folded. *This is our specialty.*

Hives, frames, crates, cases, and general apiarian supplies, manufactured and for sale by

GOSHEN BEE-SUPPLY CO., Goshen, Ind.

Send 5-cent stamp for sample of our sections.

☞In responding to this advertisement mention GLEANINGS.

ONE PIECE V-GROOVE SECTIONS BY return train, at $3.50 per 1000. Circular.
12tfdb L. J. TRIPP, Kalamazoo, Mich.

ITALIAN QUEENS

Reared on the Doolittle plan. Tested, $1.00; untested, 50c; or more at same price after July 1.
P. BROWER, New Paris, Elkhart Co., Ind.

☞In responding to this advertisement mention GLEANINGS.

For Sale - - 10 Colonies Fine Italian Bees

in Simplicity hives, full of bees, at $5.00 per colony. Also 10 colonies hybrids.
CHAS. McCLAVE, New London, Ohio.

FOR SALE—60 or more 9-Frame Hives, in good condition, with cap nailed, known as the Frost pattern, at 75 cts. each; 10 for $5.00. Have been used some. F. H. McFARLAND, St. Albans, Vt.

BEES for sale in Simplicity hives, cheap. Address
12 13d W. C. MARTIN, Ashley, Del. Co., Ohio.

BROWN LEGHORNS STILL AHEAD. EGGS, $1.00 PER 13, $1.50 PER 26. A. F. BRIGHT, Mazeppa, Minn.
7tfdb

QUEENS.—Fine home-bred Italians, and imported, from Waldensian Valley. Circular free.
10-11-12d CHRISTIAN WECKESSER, Marshallville, O.

FOR PURE ITALIAN BEES, POLAND-China Swine, White and Black Ferrets, White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks. Address **N. A. KNAPP,**
4tfdb **Rochester, Lorain Co., Ohio.**

☞In responding to this advertisement mention GLEANINGS.

Carniolan Queens.

Send for Descriptive Circular to

DR. S. W. MORRISON, Oxford, Pa.

9tfdb Please mention this paper.

BIG 3-FRAME NUCLEI, WITH QUEEN from imported Italian mother, for $2.50. Full colonies low. Thirty Rose Comb Brown Leghorn eggs for $1.00. Safe shipment guaranteed.
10tfdb G. W. GILLET, Wellington, Ohio.

☞In responding to this advertisement mention GLEANINGS.

Ah THERE! One untested Italian queen, 75c; three for $2.00; tested, $1.50. One untested Carniolan queen, $1.00; three for $2.50; tested, $2. Bees by the pound and nucleus. Send for price list. Reference—First National Bank.
10tfdb H. G. FRAME, North Manchester, Ind.

Please mention this paper.

CHOICE ITALIAN QUEENS.

Tested, $1.50. Untested, $1.00. Tested queens reared in the fall of '89, $1.50. These can be mailed at once. MISSES S. & M. BARNES,
7-12db Piketon, Ohio.

☞In responding to this advertisement mention GLEANINGS.

ONE-PIECE

SECTIONS

A SPECIALTY.

A. I. Root's style, $3.00 per 1000. Address
B. WALKER & CO., Capac, Mich., or Wauzeka, Wis.
10tfdb

☞In responding to this advertisement mention GLEANINGS.

Japanese Buckwheat ½ bush. 65c; 1 bush., $1.10. D. M. WEYBRIGHT, New Paris, Ind.

ITALIAN QUEENS.

From June 10th to Oct. 1st.

Why you should purchase of Wood:
He has had many years' experience.
His queen-cells are built in full colonies.
He uses no lamp-nursery.
He is located where there are no black bees, and where foul brood never was known. Fully 95 per cent of his queens prove purely mated.
He fills orders promptly.
He warrants every queen equal to those of any first-class breeder in America.
Price 75 cts. each; $8.00 for 12.

Address **JAMES WOOD, North Prescott, Mass.**
11tfdb

☞In responding to this advertisement mention GLEANINGS.

A BARGAIN for some one. One hundred colonies of bees in S. frame, double story, and in No. 1 order. Will take $200.00.
11-12 ANTHONY OPP, Helena, Ark.

BRIGHTEST

GOLDEN ITALIAN BEES AND QUEENS,

—AND THE—

REDDEST DRONES IN THE WORLD.

Untested, $1.00 | Tested, $2.00 | Select tested, $3.00
Special breeding, guaranteed to please, $5.00.
L. L. HEARN, - FRENCHVILLE, - - W. VA.
11tfdb Please mention this paper.

A New Discovery.

THE COMMON-SENSE HONEY-EXTRACTOR is strictly scientific, powerful, durable, handy, clean, and rapid, and differs from all others, and is cheaper than the cheapest at bankrupt prices. CIRCULARS FREE.

REV. A. R. SEAMAN, New Cumberland, Hancock Co., W. Va.
11tfdb Please mention this paper.

CHAFF AND SIMPLICITY HIVES shipped on receipt of order. Price list free.
11tfdb E. J. SHAY, Thornton, Taylor Co., W. Va.

QUEENS and SUPPLIES.

Untested Italian queens, each.....$1.00
Tested..... 2.00
Send for price list of bees and supplies.
Address **F. W. LAMM,**
(Box 106.) **Somerville, Butler Co., Ohio.**
Please mention this paper.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

Please mention this paper.

PLEASE NOTICE ADVERTISEMENT IN GLEANINGS, May 15th. Untested, 50c; test., $1.
W. M. VICKERY, Hartwell, Hart Co., Ga.

TESTED CARNIOLAN QUEENS, $2.50 each; untested, $1, or 6 for $5. Send for price list of Italian bees and queens, bred in my Nappanee apiary. 8tfdb I. R. GOOD, Vawter Park, Ind.

Vol. XVIII. **JUNE 15, 1890.** **No. 12.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

A PLEA FOR MIDDLEMEN, ETC.

OUR GOOD FRIEND MUTH TELLS US SOMETHING ABOUT SELLING HONEY AT WHOLESALE.

WE have seen a number of articles in bee-journals in which our friends describe the manner of disposing of their honey. Home trade is advocated every time. It has my full sympathy because it is the least expensive, and a retail price is realized; besides, we don't need that "middleman," who is looked upon with suspicion and with envy. He makes the money which the producer should make (?). All of us have seen and heard the expression of such sentiments. Our good friends are not aware of the expenses of a dealer in a large city, not even of his advertising bills, which are the least of his expenses. When one of our friends peddles his honey from house to house, and disposes of from 1000 to 10,000 lbs. in a season, he has certainly done a great deal, and I give him due credit for his energy; but he takes care of his own interests only, and he could not sell another quality of honey besides his own, if he would try to. Different men have different dispositions, and not many could do as he did. Some others have other business on hand, after the honey-season is over, and are glad to sell their honey to an honorable dealer. He takes care of his own interests also, otherwise he would not be a dealer long; but with him there is no difference between the Canada linden honey and the American basswood. It is well that this great country of ours affords a living to all; with your permission, Bro. Root, I shall endeavor to prove that the dealer also is of some use to this world.

The dealer can not, like some producers, peddle his honey, because he buys large lots, and honey of all qualities. His very existence depends on the turning of his money, and he is bound to find a market for such qualities as come within his reach. The avocation of a dealer also requires energy and perseverance, and more so than many of our good friends have an idea of. The sale of choice clover honey has never caused us any trouble aside from the desire of selling "more." But there was a time when we did not know what to do with fall and Southern honey. We could not dispose of it at cost, and were glad to find, at last, some printing-roller makers to use our dark honey. We took care of buying no more than we could help.

Next came a time when we believed that we could dispose readily of all the honey the Southern States could produce. Vanity is not our characteristic, but we found that we had made a mistake during a time of plenty, about five or six years ago. We could not sell as fast as honey came in, by any means. But it was not so much on account of the larger arrivals, but because of the slackening of the demand from the custom which we had believed to have established. Our trade in Southern honey is now, perhaps, second to none in the country.

Basswood honey is an article which we could not dispose of until last winter, when our friend W. J. Pickard, Richland Center, Wis., sent us two carloads. It took quite an effort and some time to find buyers. But we succeeded in selling from 80,000 to 100,000 lbs. of basswood honey during the winter. We now hope that our supply won't give out, because we have established a custom for basswood honey, which we are apt to keep if we can supply regularly. Manufacturers are prone to make a uniform quality of goods.

Who is not acquainted with the horrible (?) flavor of the horsemint of Texas? The horsemint honey has been slandered. We had, last fall, a carload of horsemint from our friend Stachelhausen, Selma, Texas. For more than two months we could not

make a sale, but had returned to us two barrels from Boston, Mass., and one from Richmond, Va., and several more from nearer by. But at last we found a customer for the much-abused horsemint honey, and we could have sold several carloads more if we had had it. You would have been surprised, Bro. Root, at the fine flavor of honey-cakes made of the horrible (?) horsemint.

We had once a large customer for the fine mangrove honey of Florida. When the frost nipped the buds, three years ago, and the supply ceased, we lost that trade. Demarara sugar took the place of the mangrove honey, and we have not regained those customers yet. Horsemint eclipsed the mangrove last winter; for most of the mangrove honey purchased last fall was still on our hands two months ago, but is gone now.

From the above you see that we can't peddle our honey; but we write to our friends, see them occasionally, and post them as to different qualities, etc.

Our home trade is stimulated in a different manner. Here we see our friends also, and supply every good customer, wholesale and retail, with a fine sample case, a specimen of which will be expressed to you. It contains a dime jar, a half-pound, pound, and two-pound jar of as fine clover honey as we offer them for sale. In the upper corner of the case stands a one-pound section of comb honey. The sample case is ornamental, and, very naturally, a conspicuous place in the store is assigned to it. By it our friends and their customers are reminded of us, and we receive their orders by telephone or otherwise, if we fail to see them in time. I will send you a case, empty, for safety's sake.

We have a large trade for honey in our square glass jars, and I believe that you find our very plain labels in most parts of the country. Our square jars are popular, and I doubt whether we should be blessed with the trade we have, without them. We ordered 1000 gross of jars a few months ago, in order to buy them at old prices, and we expect to have disposed of them, filled with honey, before the beginning of next spring, not to speak of the trade we have in empty jars.

In the above I had reference to extracted honey only, which is, for us, by far the best trade. There is no breakage in transit, and losses are caused only when shippers are careless in the selection of their cooperage. We have taken, perhaps, more pains than anybody else in the country to introduce "machine-extracted honey."

Our sales of comb honey during last winter amounted to about 60,000 pounds or more. We received no full carload at any one time, but many a large shipment of most excellent quality in one and two pound sections, and in large and small shipping-cases. We received, also, our share of dark comb honey; i. e., buckwheat honey from the Northwest, and catnip from Missouri. The latter is not as dark as buckwheat, but it is dark comb honey, which is, with us, a troublesome article, if salable at all. Dealers are to blame for its production by their misleading quotations, no difference whether they were made intentionally or in a thoughtless manner. It makes me smile to see quotations of fancy and of medium buckwheat honey. We verily believe that we have as much opportunity of selling buckwheat comb honey as any one of our Eastern competitors, and we expect to sell our share hereafter. But we know that it has been, and will remain, a cause of disappointment to shippers and buyers. One may raise dark honey enough to supply his own home trade; but to raise it for shipping purposes is against his own interests. Money will be lost with almost every shipment, by at least one party, not to speak of the ill feeling created against the one or the other. We have to render into strained honey all dark comb honey on hand for a certain length of time, and after the cases have become soiled—the only thing we can do with it.

To illustrate my argument, let me give you the following problem: If we pay 5 cents for good dark extracted honey, what should we pay for dark comb honey which we have to render into strained honey? The figure must certainly be unsatisfactory to the shipper, if we want to do justice to ourselves. If we should pay him a price fair to both, our friend would accuse us of dishonesty. However, if he had sent us his honey extracted and in barrels, instead of in combs and neat shipping-cases, his product would have been three or four times the amount; and our transaction would have been pleasant and profitable to both parties. None of us would have been subjected to a pecuniary loss, and none would have been accused of being a "sharper."

Comb honey must be wh te, and sections well filled, when the difference is but small in the sales of one and two pound sections, although the one-pound sections will remain the most popular. We want no one-fourth pound nor one-half pound sections.

"Shipping-cases" is another item of which I wish to speak. Of the many different sizes we have received during our existence, small cases, as a rule, have proved to be the most satisfactory. All cases should be glazed, at least on one side. Cases holding 24 one-pound sections answer the purpose. We have had them arrive in two-tier sections just as safe as in one-tier. But cases holding 12 one-pound sections, as a rule, arrive safer and sell faster; and, if damaged in transit, the lot can be straightened up easier. Such is our experience. These small cases can be made of ½-inch stuff, and should not cost above 10 or 12½ cents apiece, including glass.

My article has become longer than I expected; but other business does not allow me much time, otherwise we should perhaps write shorter letters and oftener. CHAS. F. MUTH.

Cincinnati, O., May, 1890.

Friend M., I am exceedingly glad to get the above paper from you. It always gives me pain when I hear folks uttering wholesale condemnation and complaint against any class of people—that is, people who are engaged in an honorable employment. We have had some experience in selling honey by the carload, but not very much, however, compared to what you have had. But we can fully understand that it requires a man with special ability, and that it is a trade of itself. I congratulate you on the success you have made in introducing honey from special localities. We have had trouble with buckwheat honey, similar to yours. Quite a lot of it is now burdening our shelves. Yesterday the bees made their way in, evidently thinking that, if nobody else wanted it, they could dispose of it to good advantage. Our wagon is offering it at 10 cents a

pound retail, and carrying it to the houses; and even at that price it does not sell. We do not wonder that you had such success with Mrs. Pickard's honey, from Richland Center, Wis. I was present when they were taking it out, and I thought that their basswood honey compared favorably with any honey in the world. If basswood is thoroughly ripened, and is thick, and has no taint nor fermentation, it is, in my opinion, luscious. You know something about having honey returned, as well as ourselves. There is quite a tract of country down in Kentucky and Virginia where the merchants will return every bit of honey as soon as it candies. They say it turns to sugar, and is useless; and during the past winter we have exhausted our logic in trying to convince them that it was all right. Our good friend Capehart, who took the orders, insisted that honey must be melted, and shipped away hot—or, at least, that is pretty nearly what he said. Well, so long as it remained liquid it sold very well; but when a cold wave came, then there came a wail from honey-dealers. I felt as if I should like to get the whole of them together and shake some sense into their heads. Now, friend M., if you can sell honey down there, and explain by circular or by personal letters that candying is not a plain indication of fraud, I shall be glad to have you undertake it. Where bee-keepers like the business of peddling honey, and can dispose of their crop in that way, by all means let them do so; but it certainly is a great piece of folly to find fault with commission men and middlemen indiscrimately. Why, friend M., if it had not been for you and your sturdy energy in working off the product of Texas, Florida, Mississippi, and other like localities, I do not know where our honey business would be just now; and it was news to me to learn that you had made an opening for the great basswood product from Wisconsin. Go on, and don't feel hurt, even if some of our small fry say unwise things occasionally.

DEEP SPACE UNDER FRAMES, ETC.

NOT A SUCCESS.

My experiment in trying to have a deep space under brood-frames through the summer has already come to grief. April 30 I found some comb started under the bottom-bars, and in one case a piece of drone comb, some 8 inches long, built clear down and filled with drone eggs. It was all built of old black wax. Others have succeeded; what causes *my* failure? My bottom-bars are ⅞ wide and ¼ thick. Perhaps a wider or thicker bottom-bar is needed. If top-bars can be so made that bees will not run comb above them, can not end-bars and bottom-bars be so made as to prevent combs between them? They are certainly less inclined to build comb there than between top-bars. If, however, bottom-bars are made wide, there will certainly be much trouble in having them glued together; for my ⅞ bottom-bars sometimes touch and are glued together. I need not say what an annoyance it is to attempt to pull out a frame and find it holding fast to the bottom-bar of the next frame. It is just possible that, in spite of my strong and long feeling against fixed distances, I may think it worth while to try the experiment of a wide frame in all its parts, with spaces at each corner. In any case I want the deep space under the frames in winter, and, if necessary, I will in some way lessen the space in summer.

FLAT COVERS.

Another thing that has not worked as well as I expected is the flat hive-cover. Either the hive or the cover, in too many cases, is just a little out of true, and that lets in cold air in spring. Is there any remedy for this? If I can not do any better I can put quilts or cloths on.

SAGGING OF TOP-BARS.

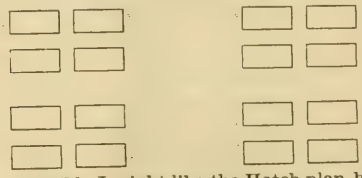
While I am telling my shortcomings, I may as well speak of top-bars. I have always said that I had no trouble with ⅞ top-bars sagging, although wired without any diagonal wires. This spring I hoed all the brace-combs and propolis off my top-bars for the first time in three or four years, hoping to get the honey-boards to work as well as ever, and I found some places where there was sag enough to make a space of ½ inch between top-bars and cover, instead of ⅜, as designed. I believe I would rather have top-bars so thick that no sagging need be feared. My top-bars are all an inch wide, except in the few Dovetailed hives I have. These last are ⅞ wide, and they sagged worse than those 1 inch wide. I think hereafter I shall clean off the tops of my frames every year, as I formerly did.

KEENEY'S PLAN OF WIRING.

I've tried hard to find some fault with the plan, taken with Ernest's improvement on page 372, but I can't do it. If foundation is cut a little too large, so as to be crowded down on the bottom-bar, I don't believe there will be any need of reversing to get combs built down. I can readily believe that ⅞ top-bars will not sag with this plan, since so few of my ⅞ top-bars sag with perpendicular wiring without any diagonals. But my bottom-bars, being ⅞ x ¼, do sag—upward.

ARRANGEMENT OF HIVES.

The lay of the land has much to do with it. In one of my apiaries I have, for the last two years, used a combination of friend Hatch's plan, on page 374, and Ernest's plan on the next page. Perhaps I might say it is simply the first part of Ernest's plan. I like it better than any thing else I ever



tried. Possibly I might like the Hatch plan better; but as there need be only 6 inches space between the hives in each group, I can, without using any more space, have an alley 15½ ft. wide where friend Hatch has 10 feet. If space is important, or if it is desired to have the apiary as compact as possible, my plan is better; but then flying bees will trouble more. Where there is no objection to using a large space, friend Hatch's plan is hard to improve on; and if it be desirable to have them closer, the 6 feet between hives, where they face each other, can be reduced to two or three, and the alleys made narrower. Just now my assistant objects to having

the hives facing each other any nearer than six feet; indeed, she objects to their being as near as six feet, in case of swarming. Another thing comes to me that I had not thought of at first. Friend Hatch has less trouble with flying bees in his alleys; but how is it when he is working at a hive? If he sits at the middle of the hive he is just 7 feet in front of a hive, nearly in its line of flight. With my plan, and the same number of hives on the ground, I am 16 feet away from any hive which is facing me. As I spend more time at the hives than I do in the alleys, I believe I like my plan best.

Marengo, Ill., May 20. C. C. MILLER.

I am somewhat surprised, friend M., that the deep space under the frames has already proven a failure with you. Our good friend Baldridge and one or two others claim them to be a success. Our friend Danzenbaker gives ¼ inch under his brood-frames, and has, in connection thereto, an entrance ⅞ deep, or wide. Mr. D. says that he not only finds nothing is built under the bottom-bars, but that this extra space with a wide entrance forces the bees to enter the supers a little earlier. He argued that bees are anxious to get their stores as far away as possible from the cold and robbers; and if the bottom of the hive were open, or exposed by a wide large entrance, the bees will actually carry their stores where it is close and protected. But if I understand you, your experience doesn't corroborate this, for you have a large entrance.

Now, doctor, I have just been waiting for a good chance to quarrel again with you on your manner of cleating covers. You know I argued, a while ago, that the covers should be let into *grooves* of the cleat, and nailed. You thought that a cleat simply nailed on to the ends of the cover, without grooving, would be just as strong, and better. And now you say your covers are not always true. I have never yet seen one cover of the Dovetailed hive that warped any; and if the Dovetailed hive is nailed true, the hive can not get out of true, on account of the great strength of the corners. Practical tests in the apiary prove this. I feel quite sure, doctor, that a cover-board let into a *groove* in a cleat is much less liable to warp than one dependent on nails alone. In this connection, perhaps I should say that flat covers covered with tin are liable to warp or wind. I notice that quite a number of our customers are ordering these covers with the tin. They will regret it, I feel sure, and for this reason: The upper surface of the board, immediately under the tin, is kept dry; the under surface, next to the bees, is subject to more or less moisture from the cluster. A cover-board not protected by tin receives the moisture from the dew and the rains on its upper surface, and this counterbalances the moisture on its under side. I should be glad to have any one try the experiment with the tinned and untinned *flat* covers, and report. I do not know, doctor, whether you cover with tin or not, but I presume you do not.—I think I can indorse all you say in regard to the sagging of top-bars. I have seen them bend down fully half an inch from a straight line.—I am glad you can not find any fault with Keeney's plan of wiring. I hope you will try it this season, and report to us a little later.—In regard to the arrangement of hives, the lay of the land certainly has very much to do with it. Trees, stumps, and uneven places, very materially modify any nicely proposed plan that we may have. When we located our basswood apiary we arranged a plan. The ground was a little swampy and uneven in places, and we found ourselves obliged to put the hives just where they will stand level, irrespective of any well-defined plan. ERNEST.

In addition to the above, friend M., I wish to suggest that a Simplicity cover is made exactly to keep the cold spring air out; and yet you are all going to throw it away, without even a thought of its advantages. Yes, and you coolly ask if there is no remedy for your flat tops and covers; and then, after I gave you the diagonal wires and tin bars that make an absolutely sure thing against sagging, you forgot all about *that*.

BRACE-COMBS AND BURR-COMBS.

HOW TO PREVENT THEM; ALL IN SPACING, AND NOT IN WIDTH OR THICKNESS OF BEES.

THE following is a private note received from one of our Canadian friends, which will explain itself:

Friend Root:—

Inclosed please find a paper written and read by request of the Oxford Bee-keepers' Association, at Woodstock, on the 21st inst. I think the paper will be helpful by directing attention, especially to the importance of proper bee-spaces. It is the *space* that must be right, regardless of either width or depth of top-bar. A top-bar ⅛ in. thick only, is, in my opinion, just as safe against burr-combs and brace-combs, provided the spaces be right, as one an inch thicker. A few years ago this same subject was up. I said to my wife that I had a mind to propose to Mr. Root that he visit me; and that if he did not fully agree that the remedy was all in the spacing, after looking over my hives, I would pay all expenses of the trip; but after thinking awhile, she replied, "Oh! well, you know people see things so differently that all might not be satisfactory." So I dropped the matter. I shall not feel hurt if you think the paper of no use, and drop it in the waste-basket. S. T. PETTIT.

Belmont, Ont., Can., May 27.

The following is the paper:

In all improperly constructed, occupied hives, may be found, in addition to the orthodox brood and drone combs, two other kinds; viz., brace-combs and burr-combs. Now, in order to get rid of, or, more properly, to prevent, the building of the troublesome brace and burr combs, it would be well to inquire into the cause of their construction, or into the conditions most favorable to their construction; or, in other words, why they are built. The brace-comb (if it may be called a comb) is intended for a very different purpose from that of the burr-comb. The former is constructed in position for just what its name implies—*a brace;* and the latter ultimately for store combs. If during a good honey-flow some sealed honey be placed close

together than the bees placed it, they become alarmed; and to prevent more crowding, and to keep things in position, they go to work and build *brace-combs* in the now too small bee-spaces. Upon examination, brace-combs will be found to be studs of hard wax, with, in some cases, a touch of propolis, possessing no small degree of resisting power. Brace-combs will usually also be built in all undersized bee-spaces, so the cause of their presence in almost all cases is quite apparent.

With regard to burr-combs, if we investigate the matter we shall discover the reason why the wayward little workers do so persistently persist in building them. We all know, I presume, that bees are severe economists, and most exacting in that line. They economize heat, time, and every thing pertaining to their welfare. Every available particle of sweets, and every thing that can be utilized by them, is eagerly gathered and stored; but in nothing are they more economical than in the space inclosed within the walls of their domicile. It is their inherent nature to occupy and utilize every space, larger than a bee-space, within their homes; and especially so is this the case at or near the top of the brood-chamber; and now, just at this point, I would ask, Is not the cause of the presence of burr-combs apparent? and does not the remedy readily suggest itself? My experience, running over quite a number of years, says the cure is at our finger-ends; is easily understood, is unpatented, and may be had for the taking—simply adjust all the interior parts of the hive so that a proper bee-space is maintained throughout, and the goal is reached—the joy is yours; for under these conditions there is neither room for burr-combs nor supposed necessity for brace-combs, and but very few of either will be built.

Frames are spaced by different parties, all the way from 1¼ in. to 1½ in. from center to center, so it will easily be seen that, in order to form proper bee-spaces, top-bars must be of different widths, according to the spacing practiced.

Top-bars ⅞ in. square, and spaced 1⅜ in. from center to center, will form spaces ½ in. by ⅞ in.; and he who expects that bees will not economize such roomy spaces at the top of the brood-chamber has failed to note one very prominent and important characteristic in bee-nature, and will simply be disappointed. Like noxious weeds, his crop of burr-combs will grow until these spaces are nearly full, and super ventilation well nigh chopped off.

But, what about deep top-bars? will one inch or so of depth prevent burr-combs between top-bar and super? Well, now, I am aware that this point should be approached charily, as so many experienced bee-keepers regard depth of top-bar as having great virtue in that line; but with all due respect for the opinions of others, I will frankly state that, after six or eight years of experience with thick and thin top-bars, I am pretty well convinced that that virtue is not in depth of top-bar, but in *correct spacing*.

Although my real frame has a top-bar about ½ in. thick, my ideal frame has one only ⅛ of an inch in depth, and of the necessary width to form correct bee-spaces. Most bee-keepers, I believe, regard $\frac{5}{16}$ of an inch as *the* bee-space. Well, I will not quarrel with that, for it is worthy of notice that the bees themselves, as yet, are not fully agreed as to what a proper bee-space should be; but I would add that it must not be even a shade more than $\frac{5}{16}$ of an inch—anywhere between $\frac{9}{32}$ and $\frac{5}{16}$ will do; but between top-bars and supers, $\frac{9}{32}$ of an inch has my decided preference. The top-half of end-bars should be of the same width as the top-bars, and the lower half tapered down to the width of the bottom-bar. The end-bars of my frames are all so made now. In all fairness, it should be admitted that some stocks seem to have a peculiar fondness for burr-combs; and under almost any conditions some embryons will appear in the hives of such bees.

Belmont, Ont., Can., May 20. S. T. PETTIT.

Friend P., I have always been greatly averse to thick top-bars, for the reasons you have given. It curtails too much the space we should like to have filled with brood. When the diagonal wires and tin bars were invented, I thought I had solved the great problem by enabling us to use thin top-bars, leaving so much additional space for brood, and at the same time having no sagging. I should be very glad indeed to know you are right in your deductions; but, if I am correct, a great many will not agree with you—at least not until they have gone over the ground carefully and made more experiments. Give my respects to your good wife, and tell her I have long been thinking of making you a call, and that it will not need the additional incentive of having my expenses paid, to bring it about. And now about the bee-space. In our locality it is a very difficult matter to maintain an exact bee-space. I find that old hives in our yard will shrink and swell, under the influence of the weather, ⅛ inch; and as the frames rest on the rabbets, near the top edge of the hive, this must of necessity vary the bee-space between the upper and lower set of frames. We made some hives two years ago that were just exactly 9½ inches deep. As the L. frame is 9⅛ inches deep, this would leave ⅜ inch bee-space on top of the frames. Well, last spring I measured these same hives. Instead of shrinking $\frac{1}{16}$ inch, as I thought they would do, they had actually swelled so that they were 9⅝ deep. It is quite dry weather now, and their present depth is 9½ inches. I have just measured several of them. If we should have continued dry weather, they might possibly shrink another sixteenth. I must confess that I am very greatly surprised to note the different depths of hives, due to climatic conditions. This may not be true in all localities, but I should feel pretty sure that it would be in most of the Northern States. Now, then, the point comes up, How are we here in Medina, and a good many other places, going to maintain an absolute bee-space, so it shall be the same at all times? I confess I do not know. The question arises, "Is it necessary to have an absolute bee-space, at all times of the year?" It does not matter much if we do have, in the spring and fall or winter, ⅜ or even ½ inch; but when honey is coming in, and brace-combs naturally start, then is the time we need pretty nearly $\frac{5}{16}$ bee-space; and if the hives are made right we will get it providing the weather is dry. Our new Dovetailed hive allows a bee-space of exactly $\frac{5}{16}$ between the brood-frames and sections. As the sections are supported by flat tins on the bottom edges of the super, a little shrinkage

or swelling will not affect the space between the brood-frames and sections. It is a comparatively easy matter to control bee-spaces between *shallow* supers, and between super and brood-nest; but between an upper and lower set of brood-frames, L. depth, it may not always be uniform. There will be a small variation between a dry and a wet season, with us. Your logic is good in regard to exact bee-spaces; and in localities where they can be maintained uniformly, perhaps a thin top-bar will answer; but with us I fancy we shall need the additional assistance of a deeper and wider top-bar. This is a splendid field for experiment, and I hope many of the readers will test it carefully.

MOVING BEES.

THE TWINE METHOD OF FASTENING HIVES; A BIG TESTIMONIAL FOR IT.

I have just returned from moving 40 colonies of bees with an ordinary farm wagon, without springs, over quite a rough road, some 8 miles, to an out-apiary, with more ease and expedition than I ever did before (and I have moved many hundred colonies, and used all sorts and methods of fastening). I used the twine fastened as given by Ernest, on page 252, April 1; and though exceedingly busy I write this to let some one who has bees yet to move, know that the method is a decided success, if ordinary precautions are used, and common sense exercised. I hauled 20 at a load, and with each colony in an old-style Heddon hive. I used two half-story supers filled with sections and starters, which made it more difficult to fasten, and more cumbersome to handle than single bodies would have been. The bottoms were all loose—nothing nailed or fastened, except by the cord, which was about the size of an ordinary clothes-line. I took the precaution, however, to secure the two parts, where they come close together on the top, by a smaller piece of twine, so as to prevent all possibility of slipping. To enumerate the advantages of this method, I will say that time and temper are saved in preparing the colonies for shipment; no nails to mar or split cover, hives, or bottom, and they can be undone in one-fourth the time it usually takes by any of the old methods. Thanks are due to the editor of GLEANINGS for giving those of us who must move our colonies to out-apiaries for so great an improvement, say I, and all will join me who try it.

Belleville, Ill., June 2. E. T. FLANAGAN.

Yes, sir, friend Flanagan, you are right. The twine method of fastening hives for moving bees is rapid, cheap, and, with ordinary care, safe. No little thing like this ever gave me more real pleasure to give to the bee-keeping world than this, because I knew it was good. Our Mr. Ward, the teamster, invented the plan. I hope our readers who have any thing to do with moving bees will give the plan a trial. I have explained it to our packers, and they are actually sending out hives, for short distances, by freight and express, tied by this plan, with no crating whatever. For particulars, see page 252, April 1.

MAKING THE BEST OF EVERY THING.

HOW TO GET ALONG; WHAT TO DO WITH DISAPPOINTMENTS, ACCIDENTS, AND STUMBLING-BLOCKS.

Friend Root:—The Barnes saw that I ordered of you the 12th of this month came to Concord yesterday evening, so I took a spring wagon and went after it this evening, and brought it home, and thought I would set it up to-night; but after opening the box I found the arm, or support, that the journal of the fly-wheel rests on, was broken in three pieces, and one end of the mandrel was sprung—done in shipping, for I heard those pieces rattling when the railroad men rolled it out of the freight-room. Now, I shall have to get a new support for the fly-wheel, and a new mandrel, before I can use the mill. I think the company ought to send them free, and *I* will leave it to you to fix the matter with them; but have them sent immediately, and I will do whatever you say, for I have confidence enough in you to believe that you will do just the best you can under the circumstances.

Poplar Flat, Ky., May 27. L. C. CALVERT.

Later, May 31.—Well, friend Root, my mill coming in the shape it did gave me the blues, and I could not help it; but I never went to sleep after going to bed until I made up my mind to try my saw next morning, so I got up early and went to putting it together. I took a strip of plank and laid the broken arm on it, and very carefully put the pieces (for it was broken in three pieces) together, and marked it off and cut a bed in the wood for it, and then screwed a block over it, and put the mill up and tried it, and it ran all right. Now for the mandrel. I put the crooked end in its box, and screwed the box fast in my bench-vise, then made a gauge fast to the bench, and turned the mandrel until it came to the point where it was furthest from the gauge; then I carefully sprung it and kept on until I could turn it clear round, and it would just touch the gauge all the time. I put it in and started the mill, and you ought to have seen the blues go out at the back door of the shop. I ran the mill the rest of that day, and Thursday and part of Friday, and it has cut over 2000 feet, line measure, and now I feel as if I were almost fixed for running a hive-factory. I can say that the mill will do all that it is recommended to do, and I am well pleased. But that broken arm, or support, for the fly-wheel, I want sent, but I am in no hurry for it. Any time will do. I think it could be sent by mail about as cheap as any way, as it is not very heavy. As you stand to operate the mill, it is the left-hand side that the broken piece is on. L. C. C.

Well done, my good friend C. How many times in my daily travels about the grounds and the factory I find things come to a dead standstill by some break-down, disappointment, or mishap! Very often, time enough is spent in severely censuring, to have gone to work and started things going again. I have before written in regard to people who have a knack of mending things. Oh what a need there is in this world for people who are good at patching up broken tools and machinery! It is true, in the above case, that the fault lay either with the shipper or transportation companies, or both; and I have known people to refuse to take a thing from the depot because

of some trifling injury. Within a month a lot of basswood-trees were refused because the tops had been bruised by standing them up in the car; therefore they were left at the station, to dry up and spoil. Now, I have had large experience with railroad companies and manufacturers, and business men almost all over the world; and with few and rare exeeptions my advice is, to take your goods and pay charges. If there is an overcharge, call your agent to witness the state of affairs. If the goods are damaged or broken, do the same. Then take your goods and repair the mischief as well as you can. Make out your bill for damages and trouble, in a fair and Christianlike way. Present the matter as an honest man should, and write to the faulty ones as you would write or speak to honest Christian men. To the railroad companies I often say, "Now, friends, the above are the facts as nearly as I can give them. If you see fit to pay me for my trouble, I shall be very thankful; but if you do not, I shall shoulder it as best I can, and try not to have any hard feelings." Such a letter almost always brings liberal treatment. And it is the same way with a manufacturer or dealer. A mild or pleasant letter to begin with will certainly do no harm. If it should transpire, however, that you have been duped and swindled by somebody who has no thought of making the matter good, then, but not before then, is the time to bring forward your artillery and fight for your rights. I am well acquainted with the manufacturers of the Barnes saws; and if they do not, in answer to the above, treat our friend Calvert handsomely, then I shall be mistaken. I have thought sometimes that they erred on the side of too much charity. In our work, all ordinary breaks in machinery are carried to the blacksmith. Very often, however, where a casting is broken there is no way but to send to the maker for a new piece. Frequently, however, we can hold the broken pieces together by a little ingenuity, so as to use the implement or tool until the missing part comes.

FIVE-BANDED ITALIANS, ETC.

PROF. COOK GIVES US SOME FACTS.

MR. JACOB T. TIMPE, Grand Ledge, Michigan, sends me some bees which he requests me to examine and give my opinion, through GLEANINGS, as to the number of bands, and as to their race or blood. These are, I believe, five-banded Italians. They are very yellow and very beautiful. The five bands are so plainly shown that no one could fail to discover them. Mr. Timpe asks if I should suspect them to be in any sense Cyprians, or that they might have any Cyprian blood in them. I think not. I think they are Italians. I have often seen these very yellow Italian bees. I believe I could take any Italian bees, and, by breeding with color alone in view, I could very soon get four or five banded bees. It is as easy to breed for the yellow as the white, which latter gives us the "albinos." I have no doubt but these bees are five-banded Italians. I should expect them to be very gentle, as they are very beautiful.

HERMAPHRODITE BEE.

Mr. Timpe also sends me a very interesting bee. I am much interested in such specimens. They are very curious, and show that the bee-keeper is a close observer, to detect the freak. This bee has the eyes and mouth organs of a drone, the antennæ of a worker, as to number of joints—twelve; one antenna the form of a worker, the other a drone, the body and wings of a worker, a sting, while the legs on one side are like those of a worker, while those on the other are regular drone legs. I have seen but one other case of equal interest. In that, one side is drone, the other worker, as I reported at the time in GLEANINGS.

NEW YORK WEEVILS.

Mr. A. Troxel, Nankin, Ohio, wishes to know through GLEANINGS the names and habits of two large gray beetles which he has sent me. These are weevils, as is at once evident by their long snout. This is the New York weevil, *Ithycerus noveboracencis*. It is one of our largest weevils. One of these is two cm., or .8 of an inch, long, though it is very large, even for this species. They often eat into the branches of apple-trees, and so girdle the twigs. If they were very numerous they would do much damage; but as they have been well known for years, and have never been so numerous as to cause alarm, I think we need not greatly fear them.

TACHINA FLIES.

If any one will look at page 424, Fig. 214, of the 14th thousand of my Manual he will see the figure of a tachina fly. These flies closely resemble a house-fly, to which they are closely related. They lay their eggs on other insects, bees included. The maggots that come from these eggs bore into the victimized insect, and wax fat at its expense. Thus the victim becomes at the same time food and home for the parasite. In most cases this tachina fly does great good, as it destroys hosts of our worst insect-pests. But when they attack bees, and kill them, it becomes quite another matter; then they are our enemies, not our friends.

It is one of these tachina flies, without doubt, that is destroying the bees of Mr. J. S. Lummitt, Bakebill, Tenn. He says the bees lie about the hive dead, and, when examined, he finds the maggot inside. This is just as I have always found this parasite, so I have no doubt but that I have decided correctly in this case. I have written to Mr. L. for specimens of the lately dead bees. As soon as I get them I will rear the flies and then I will illustrate and describe the species that is doing the mischief in Mr. L.'s apiary.

THE CEREALS AND GRASSES NOT HONEY-PLANTS.

In reply to the query of Prof. B. F. Koons, let me say that I have never seen bees working on any of our cereals—wheat, oats, barley, or rye—nor on any of our grasses, for either honey or pollen. So in answer to his question: "Do bees work on wheat, rye, oats, or grasses, either for honey or pollen, and thereby bear an important part in the fertilization of such plants?" I answer, unhesitatingly, no. Dr. W. J. Beal (see his valuable work on grasses, Vol. I.) states that he has repeatedly seen honey-bees working for pollen early in the day on tall meadow fescue (*Festuca arundinacea*). He says the flowers of most grasses, except where close fertilized, are usually anemophilous; that is, fertilized by the aid of the wind. Without doubt, insects do

not serve to cross-fertilize many of the grasses. Tall meadow fescue and buffalo grass may form exceptions.

In case of the cereals, all except rye, perhaps, are close fertilized, and thus our observation—not seeing the bees on the plants—and also the structure of the flowers, alike prove that bees take no part in their fertilization.

We may, it is true, see bees working on both the cereals and the grasses. In such cases we shall generally find plant-lice on the grass or grain, and the bees are after the nectar secreted by the insects. In case of ergotized grain or grasses—those bearing ergot—we may find bees swarming on them, as this fungus secretes a nectar which is very attractive to bees. So the mere seeing of bees around grass or grain is not conclusive that they are in quest of pollen. We must examine closely, when usually we shall find the nectar-secreting aphides or ergot.

In conclusion we may say that, while bees do act as very important aids in fertilizing nearly all our plants and vegetables — nearly all with showy or odorous flowers, they do not thus minister to the welfare of the grasses or cereals.

BEE-MITES.

It is never quite safe to diagnose a case till you have seen the patient; but I have no doubt that the small "mites" which are vexing Mr. S. R. Morris, Bloomingburg, O., are mites. Very likely they are the same that I have illustrated in "Bee-Keeper's Guide," 13th edition, page 430. These little eight-legged mites are soft, so that when slightly pressed they will be crushed and leave a red stain. Mr. M. asks how they can be destroyed, or how he can get rid of them, as he regards them as even worse than ants. As I have never had a chance to experiment, I can only suggest. I would propose that a wire gauze screen be put above the bees, so as to keep them away and then place cloth or paper, with some sticky substance on it, for the mites to attack. They will stick and so can be cleaned out. The sticky fly-paper might be used. If it does not work—I think it would—try greased paper—paper smeared with lard or molasses. The wire keeps the bees away, while the smaller mites pass through to the adhesive paste, and are caught. A screen cover and all could be rigged for a single hive, and, if successful, it could be used on the hives successively till all are freed.

THE SKINKS.

Mr. C. E. Hardesty, Connotton, O., sends me a small skink which he wishes me to comment upon for GLEANINGS. This is one of the lizards, or swifts. The Skink family have broad heads. This one is bright orange, prettily marked with black dots. It is too small and young for me to name. The lizards, swifts, or skinks, have four legs, long tails, and can run very rapidly, hence the common name, swifts. Like the joint-snake, or glass snake —really no snake at all, but the joint or glass lizard—already described in GLEANINGS, which, as will be remembered, though a lizard, has no legs, these swifts are loosely joined at the vertebræ, so that the tail breaks off very easily. Some of the skinks are very pretty, and are worthy to be admired, if people would drop their prejudice and not frown upon every thing that creeps or crawls.

The dread felt for lizards is entirely groundless. They are as safe to handle as kittens, and may be fondled as fearlessly, as they can do no one any harm. The skinks feed on insects and other small animals, and are not in any way harmful.

A. J. COOK.

Agricultural College, Mich., June 6.

Why, old friend, is it indeed true that lizards are harmless? I have often admired their bright little eyes, and felt like patting them on the back; but it is entirely new to me that they may be fondled as fearlessly as kittens. Now, why in the world don't you have a museum of pet lizards? You might have it somewhere in the neighborhood of that pet bear. By the way, give my respects to his bearship, accompanied with a bottle of honey, and charge the honey to the account of A. I. Root.

LUTHER'S SWARMING-IMPLEMENTS.

THE FOUNTAIN-PUMP.

I have used a set of swarming-tools three years, and I think them very good. I can take down swarms that have clustered high or low in trees. I can stand on the ground and get a swarm that is 20 ft. high, or I can go up 20 feet on my ladder and get them if they are 38 feet from the ground. I use an extension ladder, each section 12 ft long, and two basswood poles, each 16 ft. long. No. 1 is ¾ in.

square, with a board 2x8, hollowed at the ends, to form a hook, when the pole is nailed to the edge of it. The end of the board is to be 8 inches from the end of the pole. No. 2 is 1¾ x 1¾ in., with the face of the pulley toward the basket. There is a cord 25 ft. long, with a snap at one end, also a small staple driven into the pole about 11 ft. from the pulley to hook the snap into when not attached to the swarming-basket. The pulley is a common window-frame pulley, put in near the end of the pole, the same as is put in a window-frame.

The way I fix my baskets, I take a No. 10 wire, bend it in the form of a bail, and put the ends through the rim of the basket and bend the lower

end to the hook around a splint. The handle needs to be 12 or 15 in. above the top of the basket. I have a string 2 ft. long hanging at the bottom of the basket, to take hold of to shake the bees out. I use a small market-basket 12 in. long, 8 wide, and 6 deep. I think they cluster on it better than on peach-baskets. I also have hooks made of heavy wire, to hook over limbs to hang up baskets with bees in, to wait until I can get time to run them into the hives. The way I manage is this:

As soon as a swarm has gathered on a tree, I go with my basket and poles, hang pole No. 1 on a limb where I can easily reach it when wanted (see drawing). Pole No. 2 I hold so as to get the basket close up to the bees; let it lean against the limb, when I hold cord and pole with left hand, then take the small pole in my right hand, and, placing the upper end against the limb the bees are on, give the pole a quick shove up, striking the hook against the limb. I then lower or swing the basket 2 or 3 ft., and wait until most of the bees have settled on the basket, after which I let the basket down so I can take hold of the bail, and unhook the snap.

I now take a look over the apiary, to see if there are any swarms in the air. If there are, I hang the basket of bees in the shade, to wait until convenient to care for them. If there are more than one swarm in the air at once, I use the force-pump to keep them separate; and as soon as one clusters on a limb, I proceed as before with baskets and poles until all are in the baskets, then run them into the hives.

I had 24 colonies last year, and three baskets were as many as I had in use at any one time. I inclose a drawing of my device, made by Master Frank M. Silverthorn, one of my neighbors, who has taken but 8 lessons in the art. of a teacher. He is also somewhat interested in bee-keeping.

STEPHEN LUTHER.

Fairview, Pa., March 4, 1890.

DISADVANTAGES OF FIXED FRAMES.

DR. MILLER MILLER DISCUSSES THE PLAN PRO AND CON.

SHALL we ever get any thing settled—settled to stay? No sooner do we get settled down upon any thing than some one stirs it all up again. And now comes Ernest with his "fixed distances;" and when he starts on a thing he's such an intense chap! He's *so* Ernest! But, why doesn't he spell his name one way or the other—either Ernst, in German, or the English translation, Earnest?

But, about the "fixed distances," Ernest, don't you know that, when you were wearing short pants, it was pretty generally settled that we didn't want the inconvenience of fixed frames? There are still in use, if I mistake not, in that country from which you get your name, hives that open at the side, allowing the first frame to be pulled out sidewise with a hook, then the next, and so on, obliging you to take out every frame if you want to get the last one. The closed frame, as in the American, was an improvement on this, for you could get at the frames from the top; and after taking out the first frame you could move the others along to get out any one you wished. But that movable side wasn't liked as well as a solid box, and it was so much nicer to be able to lift out any frame you wished, simply by moving the others a little to one side. You were started on this tack by the need of something to keep frames fixed when hauling to and from out-apiaries. But I have never felt the need of this. I haul my bees home in the fall, with no other fastening than that which the bees have made, and haul them back in the spring the same way. In fact, I expect to haul my bees to the out-apiaries this spring without taking off a cover, from the time they were hauled home last fall. I wondered at your saying, on page 99, that you had so much trouble hauling, till I remembered that you had ⅞ top-bars. Mine are one inch, and I believe there is a great difference in the stability of the two. Yours will swing with a good deal less shake than mine; and if we are to have wide top-bars, perhaps you will not be so anxious for the staples or any other toggery of that kind. But you say I am prejudiced. I suppose I am. I've always had loose frames, and never handled any others except once, and then I didn't like them. But your earnestness in the matter, and your lugging around those spacing arrangements with you at the Ohio convention, have made me do some thinking, and I'll try to talk fairly about

SOME ADVANTAGES OF FIXED FRAMES.

I must admit, that it is a nice thing to have frames so fixed that there is no kind of danger that they will get out of place in hauling or handling, that you can pick up an empty hive and carelessly set it down where you want to hive a swarm without having to stop and arrange all the spacing. Then, too, if you could have it without the attendant disadvantages, and without too much trouble and expense, it would be nice to have your frames so that you can instantly and certainly space them just at the distance you want them. It takes time to space with the fingers. After you have put in all your frames, spacing them as you go, you find you have a quarter or half an inch more in the last space than you want, and then all must be readjusted. And then if we are to do without honey-boards, and depend upon spacing a certain distance, say $\frac{5}{16}$, I suppose that $\frac{5}{16}$ must be *exact*. If you spend 15 minutes in spacing loose frames with your fingers, I don't know that you can get $\frac{5}{16}$ exact—certainly not so exact as you can by instantly pushing them up against some spacing arrangement which allows them to go just so far and no further. With such an arrangement there is not the same chance for mistake or carelessness. More than once I have found two frames spaced apart twice as far as they should be, or pinched up together till almost touching. Such things could not be when frames are forced to be just right if got into the hive at all.

All these things considered, especially if we must have *exact* spacing, it may be well enough to re-try some spacing-device—I don't mean settle positively upon it, but give it a fair trial. So it may be well enough to ask in advance,

WHAT SPACER SHALL WE TRY?

Some of them are too much like the closed end-bars, requiring a movable side. And now I may as well confess that, for several years, I have been using what is practically a side-opening hive. I used eight brood-frames in a ten-frame hive, with a division-board at the side; and to all intents and purposes that made it a side-opening hive. Then when I changed my ten-frame hives last year to eight-frame, I made them 12⅛ wide inside, to correspond with my supers. Spacing the top-bars 1⅜ from center to center left a space of 1⅛ inch at one side,

and this I filled up with a dummy. So you see I was in a measure forced into it; but I have found my present arrangement so very convenient that, if I were commencing every thing anew, I would make an eight-frame hive 12⅛ inches wide, and put in a dummy ⅜ thick. One special advantage is, that by taking out this dummy I can move the frames along and handle any one I wish, without setting a frame on the ground to let me get at the rest. But I should not want a closed-end frame—at least, I think I shouldn't. I think we want a spacer that, when a frame is lifted a quarter of an inch, it will leave the frame just as free as if there were no spacer in the hive. I don't like Phelps' staples, but I do like his hemispherical-headed brass furniture-nails better than any thing else I have seen. They must work smoothly. There can't be any catching about them. They are easily put on any frame, even without shaking off the bees. They are the least likely to dull an uncapping-knife. I don't know just how much should be conceded to the uncapping-knife. Comb-honey men need not consider it, neither need extracting men, if they do not extract from brood-frames, and I think brood-frames are extracted less and less.

Now, if you don't find something better, get some of the right size of these furniture-nails, tell us how you will sell them, together with a push-stick made just right to push them in, and a good many of us may want to give the Phelps plan a fair trial.

Marengo, Ill., Mar. 21. C. C. MILLER.

Friend M., don't lay the present fixed-distance bubble to me. If it should burst perhaps I shouldn't want to father it. Yes, doctor, there was a time when I wore short pants, when there was an old Quinby closed-end hive in one corner of the apiary. I was afraid of bees in those days, and, of course, had no practical knowledge of the terrors of fixed distances as found in Quinby frames. But things are changing a little bit now. As I have before said, out-apiaries have necessitated some sort of frame that is better for moving bees; and it is very natural to look to fixed distances to help us out. Another consideration comes in; and that is, there are very few bee-keepers who space their frames properly. Farmer bee-keepers almost never have them spaced right. Day before yesterday an old bee-keeper brought in four colonies. When he arrived here the bees were escaping from under the cover. I said, "Have you got the frames properly fastened, so they will not shake about?" "Oh, ya; dey all fas'nd tide." Our apiarist took the hives and put them in position. Next day I asked him whether the frames had been properly stuck up. He smiled a little, and said the combs were spaced sometimes an inch apart, and sometimes an inch and a half, and from that down to a quarter of an inch. The spaces between the combs were almost solidly bridged with brace-combs. Yes, "dey vas all fas'nd tide," and our friend from Holland was right. Now, if this bee-keeper had some sort of a spacing-device to his frames, he probably would have put the combs the right distance apart. I have found, in buying up bees, that farmers and small bee-keepers scarcely ever have their frames properly spaced, and, as a consequence, they never move the frames, and for a very good reason. Such combs are fixed in a way that practical bee-keepers do not want them. Another consideration, *exact* spacing helps materially to diminish burr-combs, and, as you say, spacers will probably save considerable time.—In regard to those furniture nails, friend M., we have so many irons in the fire now that we will not dare to advertise them. As they are something that can be obtained at almost any furniture store, any one who desires to try them can obtain them readily. If there should be a demand for them, of course we will furnish them. ERNEST.

FLORIDA.

AN INTERESTING LETTER FROM AN A B C SCHOLAR; GARDENS AND BEES.

Editor Gleanings:—Tourists, visitors, invalids, and winter residents, have about all shaken the dust of Florida from their feet; and those of us who don't want to, or can't get away, are left to enjoy this most beautiful of all Florida seasons—the summer. Those who have seen the State in winter only, can have little idea of the fresh and becoming dress Nature puts on when the rainy season comes; and instead of dormant trees, dried and yellow grasses, and bare, white sand, we have every grass root, and weed and shrub and tree in full leaf and flower. We are told that the past winter and spring has been "exceptional," from a weather point of view; but as that is what we immigrants invariably hear regarding every unpleasant occurrence in weather or business, we have almost come to consider the exception the rule, and pronounce Florida climate rather uncertain.

We have greater changes of temperature, and more of them, than is generally supposed. For instance, on the 14th and 15th of last March the mercury dropped from 90 to 24° in the course of 36 hours. This *was* "exceptional;" but it is not at all uncommon for the tail of one of your northwestern blizzards to switch across our peninsula, driving the mercury very near the frost-point. Then the wet and dry seasons do not always come as per schedule. In 1889 the rainfall, accurately measured in Orlando by Dr. Thos. Baker, was a trifle over 5 ft. This year the total, up to May 1, is less than 4 *inches*.

Orange-groves should bloom in February instead of April, as this year. This tardiness proved fortunate, as, on account of the dormant condition of the trees, the frost of March 15 did little damage to bearing groves, except where they had been forced ahead by the use of fertilizers and irrigation. I am not an orange-grower, but I have a few set trees about my home, which came to grief in this way. When the frost came they were a perfect mass of bloom and tender foliage, and by noon of the next day they were the sickest-looking trees imaginable. But our best-remembered lessons are taught by experience; and now I think it will be some years, at least, before we try to turn another dry winter of discontent into a glorious summer by using phosphate and artificial rain. The vegetable-gardeners lost heavily, as that night made almost a clean sweep of tomatoes, potatoes, beans, peas, egg-plant, squashes, corn, etc., and the season was too far advanced to plant again with much chance for a crop.

For although this is called the land of perpetual summer, one can not plant just at any time.

We have our winter gardens and fall gardens; but the unsophisticated Yankee who plants the common garden vegetables between March and September will have have an opportunity to parallel the bee-men's biggest story of "spring dwindling." There are showers and sunshine in abundance, conditions under which one would think the gardens ought to boom; but they don't.

In our market, the quart measure is the standard, and the nickel the smallest coin that will buy any thing. As to prices, would not some of your Ohio gardeners delight in selling their tomatoes at 20 cts. a quart? That has been the price here for the last two months, and they are small tomatoes, and few in a quart too. Very poor celery is 25 cts. a stalk; lettuce, 5 cts. a head; potatoes, 50 cts. a peck; onions, 10 cts. a quart; string beans, 5 cts. a quart; strawberries are cheap now, at 25 cts. a box. Sweet potatoes are one of the very few vegetables that flourish in summer, and are always cheap—from 40 to 75 cts. per bushel. We do not plant slips, as you do, but lay a foot or eighteen inches of the vine across the ridge, and push it into the earth with a forked stick, and in a few days it sends out new roots and leaves.

The swarm of bees, my first and dearest, in more than one sense, about which I wrote you last fall, picked up a little after the robbers ceased paying their unwelcome attentions, but it was not more than a good-sized nucleus when orange-blossoms came in April. But they proved themselves "hustlers" then, and speedily filled their hive with brood and honey. As I wanted experience in manipulating them, more than honey, I divided them a short time ago, and now have a virgin queen five days old, on the three combs I took from the old hive.

Now I must tell you how I got a swarm out of a barrel, and stop. They were runaways, which a negro had caught a mile or so from town, and shaken into a barrel which had no head in either end. For a cover he set a heavy box over them. I bought them, and early one foggy morning my ten-year-old boy Don and I went to bring them home. I had a light box, fixed so as to hold four or five frames, and proposed to transfer their combs if they were large enough; if not, to transfer the bees alone. My first move was to lift that box off the barrel; and if ever I had a "bee in my bonnet" it was a second or two after. They said, "What are you at here? Get out of this!" in good English. So I set the box back and took a little time to consider their proposition. I had found a case to which "Directions for Transferring," as per A B C book, comprehensive as they are, would not apply, and I had to make some of my own. First, we fired up the cold-blast smoker, and smoked them till they couldn't wink. Then I turned the box upside down again, and set it to one side. A few combs were fastened to it, and seemed very soft—so much so that they all fell over to one side as I turned the box. Then I put my little hive where the barrel stood, and jarred the bees into and around it, mostly around it, as it was small and the barrel big. The combs were all too short to reach across the frames; but I put three of them in, upside down, so that the heaviest part would rest on the bottom-bar, and hung them in my box. On a comb not larger than my hand I found the queen, and put her safely into the hive. Now, how to get the bees in was the question. I could not wait for them to go in of their own accord, as I wanted to take them away at once. There was a narrow alighting-board on my box, so I nailed down the lid, and, making a little paddle, I began shoving them toward the entrance. When I got a bunch of them on the alighting-board I would gently crowd them up to the entrance, and, by making haste slowly, I soon had all but a few stragglers safely housed. Then I nailed the entrance shut, put the box under my arm, and walked home with my prize. How much we enjoyed the early morning walk, the dewy pine woods, and our success, you "bee brethren" will realize if you recall your early experiences when the glamour of novelty was with you.

Just one question: Do any bee-keepers use the crosswise Simplicity frame? I have made my own hives and frames, and, either by mistake or for some now forgotten reason, made the first frames crosswise, and all since. I handled some long Simplicity frames for a neighbor, and do not like them at all, compared with my own. E. J. BAIRD.

Orlando, Fla., May 20, 1890.

Friend B., the crosswise Simplicity frames have been in use for many years, and there has been once or twice a boom on them; but I suppose that most bee-keepers, like ourselves, became disgusted with having two kinds of frames in the apiary; and as the greater part of the frames in use are the regular Langstroth, the crosswise were sooner or later ruled out. I do not know of anybody now that uses them to any extent. The only objection is, they are out of the beaten track.

THE GREAT FLOOD OF THE MISSISSIPPI.

THE OVERFLOW AMONG THE HOMES OF BEE-KEEPERS; THE PROSPECTS FOR A CROP OF HONEY.

Bro. Root:—The greatest overflow of the Mississippi Valley has passed, and all the planters are busy with their preparations for the coming season. Planting cotton is almost completed, and much of it is up, and ready for the hoe and plow. The prospect for the future is very encouraging, and I have no doubt that a large cotton crop will be made. When the year closes, one would scarcely realize that such a flood could have passed over this rich alluvial country, and its ravages so soon obliterated. The corn crop will be small, as it requires to be planted early, so as to avoid the summer drought. A large quantity of millet and peas will be planted for fodder.

The overflow was 2½ feet higher over the country than I have ever known it, having resided here from my birth. The loss of stock was immense, especially cattle. Most of the work stock was saved. Thousands of cattle were driven on to the few high ridges of land above the flood, and a large portion perished of starvation. The destruction of human life was more than one would suppose. More than twenty persons were drowned within a radius of twenty miles of this city. My friend, W. G. McLendon, whom you may know as a large bee-keeper of Chicot County, Ark., lost his son, three years old, who fell from the piazza into the water, four feet deep, while his mother and father were away some distance from the house feeding the cattle that were located on a scaffold. No one saw him at the

time, and his body was not recovered for three days. We can well imagine their grief. He saved his bees, 180 colonies, by elevating them on a scaffold. The levees will hereafter be immensely strengthened, and I hope never to see such an inundation again.

My bees escaped the overflow, as the southern half of the city, with a large district adjoining it, was protected by a ridge of land above the water, where my bees were situated.

The honey-flow now is good. I will commence extracting to-morrow. All the white clover was drowned except that on the high ridges, and that was consumed by the starving cattle. The swamp woodbine, rattan, and wild grapes, persimmon, and many other forest trees, are in bloom. I hope yet to have a good yield of honey. I gave my bees a thorough overhauling, and they are in excellent condition. I have very little trouble with robbers. I use small square pieces of mosquito netting, with cords attached to each corner; and when there is the least evidence of robbing I tie them over the front of the hive. It gives plenty of ventilation to the bees in the hive, and they soon recover from their demoralization; and when the netting is removed they are ready to make a good defense of their home. I rarely keep the net on more than half an hour, unless the robbers have entered the hives in great numbers. I have large nets to envelop the entire hive, when the bees can gain entrance at the top or sides. The netting is my only resort; and as an ounce of prevention is worth a pound of cure, you can not use it too soon.

I devote my apiaries to extracted honey, reserving a couple of hives for comb honey for my own family use, as there is no profit in comb honey in this country.

I leave for Mount Eagle, Tenn., about the 10th of June, where I will devote a few weeks to my apiary there. O. M. BLANTON.

Greenville, Miss., May 26.

Friend B., when we are tempted to complain of too much rain again, we will remember your sad troubles along the banks of the Mississippi. What a sad, sad story you tell us—a little one only three years old, drowning, because he fell from the piazza of his home! May God be with the poor father and mother.

RAMBLE NO. 25.

RAMBLER IS INVITED TO A DIME SOCIAL.

FROM Fort Plain we rolled gracefully along westward on the Central R. R. We had made up our mind to stop at Oriskany and see Mr. W. E. Clark, ex-president of the N. Y. B. K. A.; but we learned that a sea of three miles of mud lay between the station and residence, and all we could do was to look away across the sea and imagine that Bro. Clark was hard at work tacking leather to those best bellows-smokers of his. We reached Rome about noon; didn't see much evidence of apiculture here, but the people seemed to bee very friendly. It was about dinner time, and two fine gentlemen said to me, "Let's go in here and have a dime social."

We accepted the invitation with alacrity, for at home our church had a real good dime social. We escorted the widow Dibble, and ate pumpkin pie, peanuts, and popcorn to edification, and raised almost $4.00 for etceteras for the minister's wife, and also for a pair of magnetic insoles for her shoes.

A DIME SOCIAL.

She, like other females, is troubled with cold feet. It is said, on this account the magnetic-insole trade is heavy among the fair sex. Well, my alacrity came very near ruining me. I am a total abstainer, teetotaler, and "prohib;" and when these fine gentlemen whisked me up to a bar, where vile compounds are sold, and asked me what I would take for a dime social, I was sorely tempted to say brandy with sugar; but I smote the tempter, and won the victory. Said I, "I'll take pumpkin pie;" and these fine men and the dispenser of drinks just laughed the Rambler to scorn. Said I, "My friends, which is better to take, a piece of pumpkin pie, and go hence with a clear head and untangled feet, or that vile stuff that will roll you in the gutter, or heap abuse upon your family?"

Their hilarity visibly subsided, and I withdrew in good order, and I hope my little lecture and stand for principle had a good effect.

Not far from Rome we had a fine visit with an old-time bee-keeper, who has the cognomen of James Moore, aged 83. In war times he had 125 colonies; but they had all died out; clover had killed out, and the bees could get nothing but weed honey, and they could not winter upon it. There's no earthly use to try to keep bees without a good stand of clover.

Said I, "Bee-keepers now feed sugar or taffy, if they find poor honey in a hive."

"Why," said he, "I fed taffy in a bake-tin; also fed maple sugar, nigh on to forty years ago, but weed honey is very deceptive. You can not see much difference between that and clover honey, and can not tell the effect it will have upon the bees; but the taffy was sure cure every time."

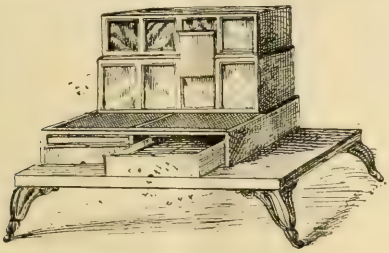
"Bee-keepers are now talking a great deal about automatic hiving arrangements. Did you ever have experience in that line?"

"Why, bless you, yes. I had the cutest hive for that purpose you can imagine, nigh on to forty years ago. This hive was invented and patented by Sylvester Davis, of Claremont, N. H. It was called the Platform hive, but I called it the Side Issue. You see, we had hot times them days in politics, and every thing was a crisis, or an issue, so I put the hive in line with the times. Here is an old picture of the hive. You observe that four hives were placed side by side. In the spring, if four swarms were wintered, remove every other one and place

on a new platform, and place empty hives next to all full ones. Close the entrance to the hive containing the swarm, and open the passages into the empty hive. If this is done in early spring, the bees will work through the empty hive; and, finding so much room, they will forget to swarm."

"But, how about a queen in the new hive? In my experience a queen is necessary, to hold the bees to business and make a permanent working colony."

"Yes, yes; but you mean a king-bee. Young men try to get smart nowadays, and fool us old heads with their new-fangled ideas; but do you think I managed bees for nothing nigh on to forty years ago? I guess I know. The process was just as simple when the hive was full, as you could see by the glass in the rear of the hive. Open the front entrance to the old hive, and close the passages between, and the thing was done. The kings



NON-SWARMER BEE-HIVE.

that were always around would set up rule. But this hive was a terror to moth-worms. I used to kill dozens every morning in the little moth-drawers. I had to tend right to my knitting and drop no stitches, to keep them from hatching, when I kept bees nigh on to forty years ago. Then, you see, under the wire-cloth platform was a spring exerciser and feeding-chamber. When it is too cold for bees to fly in the early spring, let the sun shine in here, and what a jolly time the bees could have!"

The inventor also advocated spring feeding, and also gave the following recipe for feeding to make the best of box honey:

Take 25 lbs. best West-India honey; 25 lbs. white sugar; 40 lbs. water; one gill of salt; ½ oz. essence of anise; 1½ pints mucilage of slippery elm; ½ gill of porter (or ale); flavor to suit the fancy.

But I could never see much profit in the plan, and never tried it; and so my aged friend who kept bees "nigh on to forty years ago" had experimented very near to the late methods of taffy feeding and the self-hiving of swarms. There is one thing, however, we think that is for ever buried, and that is moth-traps. Our aged friend found the worms always plentiful, and the trap was a splendid breeder if only neglected, which it was sure to be by nine out of ten of farmer bee-keepers.

We found bee culture not much indulged in, in the immediate vicinity of Mr. Moore. We suppose the weed honey and moth-traps had given it a setback from which it could not recover. As we left our aged friend, the thought that "there is nothing new under the sun" was uppermost in the mind of the RAMBLER.

Friend R., we are very glad indeed that you stuck to your principles; but I never before heard of using pumpkin pie as a "beverage." Come to think of it, however, Josh Billings calls it "the deliteful bevverij of Nu Inggland." It is a safe thing to take, however, and I believe that all are agreed in regard to the matter. I well remember Sylvester Davis' patent bee-hive and the Side Issues. The drawers were to pull out and catch the moth, and were a big thing when first introduced. It had its day, however, and passed away, as has been the fate with patent hives for fifty years or more.

MANUM ANSWERS CORRESPONDENTS.

PRACTICAL QUESTIONS ANSWERED.

Friend Root:—In consequence of my talks in GLEANINGS I have received many letters of inquiry on various matters pertaining to the bee-business; and thinking that my answers to some of them may be of interest to some of our bee-keeping friends, I venture to forward you the following:

The first is my answer to a young man living in a neighboring State, who wants a situation as an assistant in the apiary, and who wishes to know how I manage with my men, and how much I pay, etc. My answer was substantially as follows:

Mr. A.—I reply to your favor by saying that I require six men to assist me with my bees during June and July—one apiary being let on shares. I usually hire one or two men for four or five months, and the other four for only two months. The price which I pay varies according to the experience and *worth* of the man. I have one man who has worked for me seven seasons of six months each. I pay him $25 per month for May, September, and October, and $30 per month for June, July, and August. The time is divided in this way, so that if, from any cause, he does not complete his full time, there would be no question as to the price to be paid for what time he works. I have another man who has worked for me a number of seasons, and who prefers to work only through June and July. I pay him $75 for the two months. I have another man who has worked for me one season; and as he is an excellent and faithful man, I pay him for this season $25 per month for three months. For a new hand, or one who has never worked for me, or for any one near me who practices my methods, but who has had a little experience with bees, and who understands the theory pretty well, I pay $40 for two months, or $70 for six months, when they insist on working through the season for the sake of learning the business. Of course, their board is included at above prices. I locate one man at each out-apiary where he is to remain during the swarming season, which is usually from five to seven, and sometimes nine weeks, but more often six weeks. I expect my men to be at their post every day during this time, Sundays and all; and while I do not expect a man to do any unnecessary work on Sunday, I insist on his being on hand to hive swarms that may issue. It is my practice to visit each apiary once or twice each week, to give instructions, and to assist the men when assistance is required. You say that you have had a little experience at home with a few swarms, and that you have read several bee-books, such as Cook's Manual and the A B C, and that you have taken GLEANINGS two years, and that you would like to work the first

four months of the season, and that you are a young man of good habits, and anxious to learn the business. You ask if I expect my men to do other work not pertaining to the bee-business. Yes, I do those who work before and after the swarming-season. I have a small farm—40 acres—and when not busy with the bees I sometimes ask my men to assist in planting, and in the fall in harvesting; but my farm being small, and there being so many of us, the farm work is light, and quickly done. Now, in view of these considerations, and what you say about yourself, I will pay you $60 for May, June, July, and August.

HIVING TWO OR MORE SWARMS TOGETHER.

Mr. Manum:—When you hive two or more swarms in one hive, how do you unite them without their quarreling? and what do you do with the extra queens? My answer is, that, in a large apiary, there will usually be several swarms out in one day—we sometimes have 20. In that case two or more may be hived together without fear of their quarreling; but if they issue one per day, or one has been hived two or three days, and it is desired to unite another with them, I first cage the queen already in the hive, and hang the cage in the hive, and then shake the bees off the combs in front of the hive, and at once dump the new swarm with them, having first secured their queen, and at once sprinkle them, hive and all, with sweetened water well flavored with peppermint, and allow them to run into the hive. Just at night I liberate the queen. Now, if the extra queen is an old or inferior one, I pinch off her head: but if she is only one year old, and a good one, I either introduce her in place of some old or poor queen, or return her to the hive from which she issued, after first removing all queen-cells. Having lost so many bees by swarming, she will not be likely to attempt to swarm again the same season. At this time I usually discard all my two-year-old queens, and for the past two years I have had calls for all such at 50 cents each. By this practice I winter no queen over one year old. If you wish much increase you can hive the extra queen with just enough bees to cover one card of hatching brood; and by giving them a card of brood occasionally, you will soon have a colony in good condition for winter, without having much reduced the working force in those hives run for surplus.

WILL IT PAY TO CONTRACT?

Another makes the following inquiry:

Having read much of your writing in GLEANINGS, with interest, I venture to ask whether you think it pays to contract the brood-chamber during the honey-flow, to secure all the honey in the surplus receptacles.

My answer to this question is this: In a locality where no fall (or dark) honey is stored in sufficient quantities to winter the bees, it will not pay, at the present low price of honey and high price of sugar. When honey sold at 20 to 25 cents per lb., I practiced contracting with profit. But I prefer now to allow them the full number of combs, so that the bees may store enough, or nearly enough, honey for winter, while the white-honey flow lasts, as we very seldom get any honey here after the basswood season. But if in your locality you are quite sure of securing fall honey enough for winter stores I would advise contracting during the white-honey flow. You should be governed in this by your locality, both as regards quantity and quality of honey, as well as by the price your honey sells for.

PACKING FOR CHAFF HIVES.

Another man asks:

What is, in your opinion, the best material for packing the so-called chaff hives? I have made a few Bristol hives from your description of them in GLEANINGS, and the only material for packing I can get near by is unseasoned basswood sawdust. Do you think this would soon dry after packing, so it would answer the purpose?

Answer:

No: I would hardly dare use it, for basswood will mildew very quickly in hot weather; and, again, sawdust alone will pack too hard to answer a good purpose; because the harder any such material is packed, the more it becomes a conductor for both heat and cold. I believe fine *dry* planer shavings, such as are made by planing well-seasoned lumber, are as good as any thing which can be got cheaply. Now, if the bottom of the hive around the outside walls is air-tight, these shavings will form a multitude of little dead-air spaces; while if, on the other hand, the bottom of the hive is not tight, so but that it will admit of air, these same shavings will form a multitude of little air-channels up through which fresh air will continually circulate, which would doubtless be a benefit to the bees in hot weather, if not in cold. So, then, my preference is dry planer shavings. Oat chaff, or very fine cut straw, are good.

A CALL FROM A NEIGHBOR.

"Halloo, Charles! walk in. I am glad to see you this lonely rainy day."

"Well, I have called to have a little chat with you about the bees. Jennie said you were in your office, so I walked right in. I hope I am not interfering with your writing."

"Oh, no! not at all. I was just having a little mechanical chat with our friend Root. Well, have you been out to your apiary recently?"

"Yes: I was there yesterday, and I found things a little mixed. You remember I told you in April that I had lost only 4 per cent in wintering. Well, that was true; but since then every one of my light colonies has gone up; and some that were not so very light are missing. The boy I have there says that a number of them have swarmed out, and left some brood and lots of honey, and I have called to ask you to tell me the cause of such conduct."

"Well, Charles, you know we have had a very cold backward spring, which has been a trying time for the bees, especially light colonies. They all being so short of pollen, they have worked hard to get a little whenever they could fly out, and many times they ventured out when they ought not to; consequently the old bees have wasted away to an alarming extent. In fact, there are scarcely any old bees left in any of my hives; therefore those that came through light did not have the strength to rally and survive the wasting-away of their small numbers, and had to succumb to their fate—dwindling."

"But, what was the cause of fairly good colonies in the spring swarming out and leaving their brood and plenty of honey?"

"Well, now, let me ask you a question. Did those that have swarmed out have young or old queens?"

"Nearly all of them had old queens. Two of them had young queens hatched last August, but

they were not very good layers last fall, so I do not care much for them."

"Well, then, one cause of absconding is due to the queens, and can be traced out thus: The queens being on the decline—or poor—and the colonies being light in bees in the spring, the queens did not get to laying early enough to get a batch of young bees hatched out before the crisis came: and finding that they were weakening instead of gaining, and not being able to cover and care for their brood, they became discouraged, and swarmed out; when if they could have held out a few days longer until the brood commenced to hatch, they would not have swarmed out, because a few young baby-bees would have held them. I have given such colonies a few young bees from other hives, with good success, when discovered in this condition. If the weather had been favorable, all of these light stocks would have pulled through all right; but we have had about the hardest spring I ever knew, and we shall have no light colonies this summer to bother with, as they are all gone where the woodbine twineth."

"Have you engaged all your help yet for this season?"

"No: I am two men short."

"What are you going to do in that case?"

"Well, I have got to run three apiaries myself—two out-apiaries, besides this one at home: so when you are enjoying yourself in your one apiary you can think of me with three to manage, besides the other boys to look after."

"But, how are you going to do so much yourself, pray tell?"

"Well, I am going to try to prevent swarming in the two out-apiaries, and the home apiary I shall run principally for extracting; and I hope, by giving them room enough, they will swarm but very little if at all; and one of the out-apiaries I shall manage by removing the queens just before they prepare to swarm, according to Elwood's method, and in the other out-apiary I shall try to prevent swarming, according to Manum's method, which I do not care to tell you about yet, as I am not sure it will prove practical on a large scale. I have tried it with only a few colonies."

"Well, I hope you will be successful; but I think you will have your hands full before the season is over."

"Thanks. I assure you I shall work faithfully for success, and *succeed I must*, in some way."

Bristol, Vt., May, 1890. A. E. MANUM.

THE TEXAS AGRICULTURAL ANT.

PROF. COOK TELLS US SOME WONDERFUL THINGS ABOUT ANTS AS WELL AS BEES.

I HAVE received from Mr. W. D. Allen, of Koose, Texas, a fertile (or wingless) queen of these strange ants (*Pogonomyrmex barbatus*). He requests a report through GLEANINGS, and desires especially to know whether there is more than one queen in a colony, and whether there is any way to exterminate these rivals in agriculture. As they allow no vegetation within a radius of six or eight feet of the door to their nests, the damage they do is by no means insignificant. I am specially glad to receive this queen ant, as we have none of this species in our collection. I shall be very grateful if Mr. Allen can send me more queens—both winged and wingless—males, and workers—both large and small.

I am also glad to present to the readers of GLEANINGS something of the life and habits of these interesting insects, especially as they are of peculiar interest to bee-keepers, as there is much in common in the life economy of ants and bees; and the student of either will the better understand his subject if he study the other. These ants (see cut) are reddish brown in color. The queens are a little more than half an inch long. The males — drones — are half an inch long, and the workers, of which there are two sizes, are respectively one and two-eighths of an inch shorter than the males. The young queens—virgins—and males have wings, while the workers and laying queens are wingless. Like bumble-bees they live in underground nests; though these ants tunnel into the earth for several feet, and have quite extensive galleries. They may have a hill or mound above their tunnels, or they may have no hill. The entrance to the tunnels is usually by one opening; but there may be two, three, or four, all near together. They take their name, "agricultural ant," from the fact that they keep a circle, with a diameter of from six to sixteen feet, about the entrance to their nest, entirely free from all kinds of plants; and radiating paths, also cleaned of vegetation, stretch for many feet in every direction from the central circle. These paths are five or six inches wide at their inner end, and become more narrow as they extend. They are also husbandmen, in that they garner into their nests seeds during summer, on which they feed at all seasons. Their paths are highways over which they bear the heavy seeds. To show how brainy they are, it is reported that if, from heavy rains, their granaries are flooded, the seeds are carried out to dry; and, when dry, are carried back. To show their patriotism, it is reported that, in case of storms, they will plug the entrance with their bodies, and thus die for their kindred and home. There is a certain kind of grass—"ant rice," which is nearly always found about the cleared circles of these insect agriculturists. It is believed that the ants sow the seeds purposely to raise their favorite forage crop; while some argue that the presence of the ant rice is accidental, coming from seed carelessly left by the ants. There is some reason to believe that there is purpose in the seed-sowing. So we see these Texan ants are veritable agriculturists, and no mean rivals of man. The young queens—virgins—have wings. When the season for mating comes—in June—the males and females fly forth and mate. It is reported that they mate on the ground (?). The males die at once, and the now impregnated queen flies off, and alone commences to dig a home. So, like the queen bumble-bee, the queen-ant, at first, has to do all the labor. The queen ant, finding her wings in the way, bites them off. The hard command, "If thy hand offend thee," is obeyed by these insects. Who shall say that insects are destitute either of intellect or morals?

All the ants which are produced at first are workers, and those produced while the queen is not only chief, but the only "cook and bottle-washer," are the small workers. Thus, as with bees, a stinted

diet results in undeveloped females, or workers, and a very stinted larder produces small workers.

As the season advances — June — the males and queens again appear, and fly forth to mate, after which the queens commence new colonies.

To answer Mr. Allen's question, I think there is only one queen in the colonies of these ants, though I may be wrong, as many species of ants have several queens in a single colony.

Ants are very muscular. It has been estimated that a man, to equal an ant in performance, would have to walk over 150 miles a day with more than a ton weight on his head. Like bees, ants are very neat, and spend much time in scrubbing and combing. Unlike bees, the ants scratch and comb each other, and there is every indication that the recipient of such favors receives them with great satisfaction. The ants are also seen to sleep so soundly that they are waked with difficulty. From this we may very safely conclude that bees also take naps. As the agricultural ants are always *all* in their nests from noon to one o'clock, it would seem probable that this is the usual napping time.

Any who are specially interested in these ants will do well to read the very interesting book by Rev. Mr. McCook, of Philadelphia, on this insect. This is a book that should be in every public library.

Mr. Allen asks for a remedy, or means to exterminate these pests. I have no doubt but that bisulphide of carbon, poured into the tunnels between twelve and one, will quickly destroy these ants. It is used successfully to destroy the prairie-squirrels in the West, and I have used it here with entire success in killing the ants that are often so annoying on our lawns. I have just explained the use of this substance, and the other insecticides which I have found useful in killing insects, in a bulletin entitled *Insecticides*, which any one can get free by addressing a card, requesting it, to Secretary H. G. Reynolds, Agricultural College, Michigan.

Mr. McCook explains a trap which he says will very soon exterminate all the agricultural ants of any nest. This consists of a tin box set over the hole, so made that any ant passing either in or out must pass over an inclined piece of bright smooth tin, whose roof-like edge stands or projects over the box. Thus the ants are precipitated into the box; and as they can not get out, they are easily killed. I should suppose that, if the box were quite large, and contained kerosene, it would need no attention after placing it, else it would need emptying each day. A. J. COOK.

Agricultural College, Mich., Apr. 26.

I am sure, dear friend, we are all very much interested in what you have just told us. I have heard of those ants sowing rice and tending to the crop. Now, although my faith is very great along this line, I must confess that I am strongly inclined to think, with the others you mention, that this must be a mistake. Even though the ants are seen depositing seeds, I do not believe they do it with any expectation of waiting for a crop. Some one has said that the lowest types of mankind can be distinguished from the highest types of animal instinct, by a very simple matter; namely, no animal ever yet had sense enough to build a fire to warm him when cold. In the same way, I should say that no animal or insect ever had or ever could have sense enough to sow seeds and wait the production of a crop.—Are you not putting it a little exact to say that the ants are all in their nests from noon till one o'clock? Did you not mean to say for a period of about an hour, usually, during the hottest part of the day? Without clocks and watches they would have to go out and take a look at the sun to see when it was about napping time. I do know that domestic animals get into the habit of judging time very accurately. Our Clydesdale team has learned to make a fuss if they can not get into the stable and be fed when the whistle blows. A few days ago our teamster told them to go on; that they could not stop that particular night, even if the whistle did blow, and one of them gave a loud whinny of disapproval.

THE HEAVY LOSSES OF BEES IN YORK STATE.

ITALIANS WINTERED BEST; BLACKS AND CARNIOLANS ALL DIED; HONEY-DEW THE CAUSE.

I SEE the report of James Markle, in last issue, from New Salem, N. Y., that he lost most of his bees. I live about 12 miles from him. The loss of bees through this part of the State is fearful. It has cleaned out whole apiaries, and covers a large territory. The whole cause is bad stores, or, in other words, the large amount of honey-dew that the bees gathered last September. I put into the cellar about 125 colonies. All perished except 60 colonies of Italians, the rest being blacks. The Italians had their hives stored with plenty of good early white honey, and had no occasion for storing honey-dew, as their hives were full of good honey. When the honey-dew came, every colony of pure blacks perished. Does this not prove the superiority of the Italians over the blacks? Last season the blacks did nothing, and hardly pulled through the summer, while the Italians in the same yard gathered enough to live on, and stored their hives full, and gave some surplus. The blacks have no honey stored; and when the honey-dew made its appearance they had room for all they could gather, and in a few days their hives were full. As it became salvy as soon as gathered, it was impossible to extract. I see you doubt, in your foot-notes to Mr. Markle's report, that the food was the whole source of the loss. It certainly was, and nothing else. If it was not, why did those having honey-dew *all perish*, and those having good pure stores *all* live, being all wintered in the same cellar. If the bees had all been left out of doors, the loss would not have been 5 per cent, as those that were left out had a cleansing flight every few days all winter.

I am done now with black bees. They are certainly not worth bothering with in this section of the country. I have kept about an equal number of blacks and Italians for the last 15 years, but now I will not bother with the blacks any longer. All they are good for is to work on buckwheat when we have a good August, and honey-dew when it comes. Although my loss has been heavy for me, never losing any in winter before, I am not discouraged. I have 60 good strong colonies of Italians left. I shall try all the harder to get back to

my number again; but it is hard for a poor man to lose so many.

CARNIOLANS BAD FOR WINTERING.

I had a few colonies of pure Carniolans. They were the first to perish. I have tried them now four years. They are no better than the common black bees, but worse to swarm.

Gallupville, N. Y., May 20. F. BOOMHOWER.

AN A B C SCHOLAR'S EXPERIENCE IN CALIFORNIA.

STARTING WITH A FEW FOUL-BROODY COLONIES, AND INCREASING TO 80 HEALTHY ONES.

THE rainfall in Southern California has been very large, being over 40 inches, while in ordinary years about 20 is a fair average. Such rainfalls have preceded good honey years in the past, and a good flow of honey was predicted by the bee-men for this season. This prophecy seems likely at present to be fulfilled. Swarming has been going on at a lively rate, and honey is now coming in freely. We have this year's swarms from which we have already extracted and taken comb honey. Some of them are also ready to swarm again.

This is all very encouraging to us. We know nothing at all of bee culture except what we had read in the A B C book and a few copies of GLEANINGS. We took an apiary here that had dwindled from 150 down to 18 hives, containing bees. Foul brood had been among them, and we knew what we had to contend with. Of the 18, about 6 or 7 were unaffected, and the others have at this date mostly gone with the majority.

We also purchased another apiary of 22 hives, also affected. The price paid was so little that I am ashamed to mention it without your knowing all the circumstances. I noticed they were about as willing to give us *all* the apiary as a part of them for the sum we offered. We had very little money, and were obliged to think before investing. We commenced by buying empty hives at a low price, taking out comb and boiling them in an iron tub. The wax, we traded to a supply-dealer near by, for foundation. We then removed all diseased brood and gave foundation in place, removing the bees at the same time to a cleaned hive. We now have a rousing apiary of about 80 hives. I never knew that bees could work as ours do now from daylight to dark. About 10 or 12 swarms we took from trees and buildings, or picked up in other localities during the swarming season. The others are the increase of our apiary. We have rented a furnished cottage, and it would seem that we shall be able to live comfortably. I might say, that California was as new to me as the bee-business. It was a strange land, strange people, and a strange business at the same time. Such sights as raising an empty hive and finding a lizard a foot long inside would be new to many of your bee-family. Every step of the way was new and novel. We often read the A B C book until late at night, that we might know how to act the next day. My helper is a young man of more than ordinary practical talent and discernment of things. Though scarcely able to speak or read English, much of the credit of success is due him. I read the book and gave him the outlines, and was often astonished at the almost marvelous comprehension, and even enlargement of the subject, which he showed.

To the bountiful year, given by the kind heavenly Father, of course, is due such an incease. Henry keeps a Bible in the bee-house, and at times reads to me while I pronounce and explain the hard words. He thinks it better than gold, and digs deeper and deeper into its mines of truth day by day, so that, besides becoming bee-keepers, we are fitting for the pure and beautiful country beyond. Oh that we might get right, before the summons comes to pass over!

To speak of bees again, I will tell you what I did. I transferred a hive, cutting out several combs, and fastening in other frames, without veil or smoker, and without getting stung. I do not know whether it is a feat or not. It was a good swarm I found in an odd-sized hive piled up with others some distance from our apiary. I did not want to go back again, and to save time I put it in a regular-sized hive, as above stated. I raised the cover *very* gently, and got them exposed to the sun and air, and then I think they did not know their own hive, and so did not defend it. At any rate I cut out the combs and fastened them into the other frames with sticks; and though the air was full, not one ventured to sting.

It is necessary to shade all hives here. We buy store-boxes for shades, and also use burlap some, under the cover, and hanging down in front to shade. We have just finished painting the hives white, the better to stand the heat. I have seen combs at the front of the hive (a black one) that were melted into a mass.

We get 12½ cts. at the village store, for comb honey, in 1-lb. sections. It is retailed at 15. For extracted we get 6 cts. by the 60-lb. can, and 7 for small quantities. We have just prepared 32 60-lb. cans for honey, and hope that will not nearly hold it. We have extracted at this date about 8 cans, and the white sage is just beginning to furnish honey. "Black sage" has been the best honey-plant up to this date. Swarming commenced March 28, and was wonderfully lively for a time, but now seems mostly over. W. S. RITCHIE.

Sierra Madre, Cal., May 19.

BRACE-COMBS, ETC.

FRIEND DOOLITTLE ARGUES THAT WE DO NOT WANT THEM REMOVED.

IT has been with much interest that I have read all the arguments, experience, etc., along the line of wide and thick top-bars for the frames to do away with brace-combs, all, or nearly all, seeming to think that it would be a great advantage to "be rid of such a nuisance," or, at least, they seem to think of these brace-combs only as a nuisance. Now, with me I consider these brace-combs a great help, and for years I have allowed them to remain on the top-bars of my frames, because I considered them of value; that is, I consider them of more value than they are a disadvantage. Were I working an apiary for extracted honey I might change my mind a little, perhaps; but for comb honey I would not allow any one to scrape them off my frames for 50 cents per hive. Years ago I considered them a nuisance, and so each year I scraped them off in the fall when I prepared my bees for winter, till one fall, through an extra amount of other work, I did not get time to go over more than about two-thirds of the apiary in preparing for

winter, guessing at the rest, or, what amounted to the same thing, weighing the hives to come at the amount of stores they had, instead of inspecting every frame, as I usually do. Previous to this I had used the Hill device, or something similar, to give the bees a passageway over the combs during winter, as is so often recommended to be used under the bee-quilt; but frequent examinations during winter satisfied me that these brace-combs, which I had taken so much pains to remove, answered every purpose of the device, besides being much cheaper, as well as requiring no room in my shop, or lugging back and forth from shop to apiary both spring and fall, which they required when used. But their greatest advantage appeared when I came to put on the sections, for the bees seemed to consider them as little ladders on which to climb up into the sections, for it was a very noticeable fact that the bees entered the sections much sooner where these brace combs were left than they did those where they had been removed, and, if I remember correctly, I so wrote in GLEANINGS at the time, advising all to remove the brace-combs from the bottom of the supers, but not from the tops of the frames. The next year I tried the same experiment again, and so on for several years, till at last I became thoroughly convinced that these brace-combs added largely to my crop of comb honey by getting the bees into the sections much sooner than they otherwise would.

Now, some may say that it is no use getting the bees into the sections as soon as the first honey comes in; but I claim that this has very much to do with our crop of comb honey. It is not that the first four or five pounds of honey stored in the sections could be sold for so much cash that I wish it placed in the sections, but all my past experience teaches me that, for every pound of honey stored in the brood-nest at the commencement of the season, there will be ten pounds less stored in the sections that year. Let the bees once commence to store honey in the brood-chamber thus early in the season, and they are loth to enter the sections at all; and, instead of giving us lots of section honey, they keep crowding the queen from the cells more and more till, when fall comes, we have little honey for market, and our bees in poor shape for winter. When we come to fully understand this fact we shall see that, wherein these brace-combs are the means of having our bees enter the sections sooner, just in that proportion are they of value to us. Try the experiment, brethren, and see if, at the end of such a trial, you will not be willing to put up with the inconvenience they cause you, for the sake of their great value.

CAPPING COMBS.

Picking up a paper lately, I read an article arguing in favor of extracting honey before it is ripened, in which were these words: "It stands to reason, that, if a colony is saved the time of capping over hundreds of square inches of comb, it will gather just that much more honey." This I claim is a mistake wrought out by the writer in not being familiar with the laws that govern the inside of the hive. If the bees which capped the cells were the field bees, and if these cells were capped in the day time, then it *would* stand to reason, as our writer claims; but when we come to know that (when a colony is in a normal condition) it is the bees that are under 16 days old which do all of the wax work, and that the larger part of this wax-working is done at night, then we see that the capping of the combs plays no important part in the production of honey. The bees which cap the honey would not go into the field if there were no honey to cap, so I do not see where there would be any saving in keeping them idle by extracting the honey before they had time to cap it. If it is to be argued that it would save the honey that went into wax to form the cappings of the combs, then I answer, that, according to Prof. Cook and my own observation, bees always secrete wax enough for the purpose of capping combs, during a honey-flow, whether combs are capped or not; hence it is wasted if they have no place to put it. Looking at it in the above light, which is the correct one, in my opinion, there is no saving to the bees in extracting unripe honey. More bulk of honey will be obtained, I admit, but not because time is saved to the bees.

Borodino, N. Y., June 6. G. M. DOOLITTLE.

Friend D., I remember quite distinctly that, when you paid us that visit ten or twelve years ago, one of the things you were very emphatic about was that you did not want the burr-combs removed from the top of the frames; and during all this discussion in regard to brace-combs the matter has been on my mind, and I have been feeling quite anxious about it; but I had not got started until you took it up. Now, I think very likely you are right. But you use an arrangement amounting virtually to the wide frame for holding sections, put over the tops of the frames. Now, if I understand you, you let these burr-combs go right up and be built right on to the bottom-bars of the wide frames. In that case you have a sticky, dauby mess every time you remove the wide frames to take out the sections. Then you have the inconvenience we all know about so well, when putting them back again. May be you have some way to obviate this latter matter, however —I hope you have. I once decided that I would let the crate or super be built fast to the tops of the frames, and let them remain there during the honey season, taking out the sections when I want to, by removing them one at a time from the crate or super, to get rid of this inconvenience of breaking loose from the burr-combs. I emphatically agree with you in regard to getting the bees at work in the sections before very much honey is put into the brood-combs, although I should not say that one pound in the brood-nest very often prevents ten pounds from going into the sections. I am inclined to think there is quite a saving in the quantity of honey by extracting before the combs are capped, although I quite agree with you in your statement that the bees that gather the honey do not, as a rule at least, cap the cells over. Ernest calls my attention to the fact, friend D., that you use a deeper frame than the shallow Langstroth, and there is a pretty general agreement that bees will go into boxes quicker from shallow Langstroth combs than from the square Gallup combs. He says, too, that many who are using thick top-bars declare they do not hinder the bees from going up into the boxes, even though no burr-combs are built over these top-bars. I should be very glad indeed to have our good friend J. B. Hall, of Woodstock, On-

tario, the pioneer of thick top-bars, tell us what he thinks about it. He is an adept in getting large amounts of comb honey, as all know who talked with him at the exhibit at Toronto.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 162.—*a. What do you pay for competent help in the apiary? b. Do you employ boys or men? c. Which is the cheaper help—the average boy from 12 to 16, or a full-grown man, the boy receiving wages proportionate to that of the man?*

I don't hire any help.
Ohio. N. W. A. B. MASON.

a. We do our own work.
Illinois. MRS. L. HARRISON.

a. $30 per month and board. b, c. A good competent man is always cheaper.
Louisiana. E. C. P. L. VIALLON.

a. From $15 to $30 per month, according to reliability and experience of the hand. b. Men. c. Man.
Cuba. O. O. POPPLETON.

Farm wages. b. Men. c. The man, provided he knows as much as the boy; i. e., enough to do as he is told.
New York. C. P. H. ELWOOD.

$1.50 per day. b. Employ a man. c. A handy boy will do full as well as a man, and will work cheaper. The trouble is to get the handy boy.
New York. E. RAMBLER.

I have never paid regular wages to any except boys of the ages mentioned. I paid them 40c per day. I should prefer to pay more for older and more reliable help.
Illinois. N. C. J. A. GREEN.

We employ either boys or full-grown men, and pay without regard to the age, according to the good will and ability. A man may be too dear at 50 cents a day, while another can be cheap at three dollars.
Illinois. N. W. DADANT & SON.

I do not hire. The man who thinks he knows much about bees, and really knows nothing as he ought, is rather unpromising timber to make help of, compared with a good boy who is willing and anxious to learn.
Ohio. N. W. E. E. HASTY.

a. Don't employ any. c. A boy 16 years old will do as much work as he ever will during 10 hours each day, and should be paid as good a price as a man, providing he does his work as well. There is a difference in boys as well as men. A poor one of either does more damage than good in any apiary.
New York. C. G. M. DOOLITTLE.

a. About $35.00 per month for men; 15 to 20 for boys. b. Both. c. A good boy is as good for some kinds of work as a good man. It depends on the kind of work you have to do; some parts of the season, boy's work is the cheaper. As a rule I should prefer experienced help—men instead of boys.
Ohio. N. W. H. R. BOARDMAN.

a. Usually $25 for an inexperienced man to work with me, and $35 to $50 for experienced help; amount depending on skill of man, amount of honey coming, and whether he has to take charge of an apiary himself. Also somewhat by the supply and demand of help in the market. b. It seems impractical to work boys in to advantage, except where several hands are needed in an apiary.
California. S. W. R. WILKIN.

a. $30 per month with board is the highest that I have paid for the season. I have hired more for the past 15 years at $1.00 a day and board, than at any other price. This was to a man that has been with us 18 years, and has proved to be the cheapest help that I have hired. b. Both. c. I have had some boys that were excellent helpers; but find quite a relief in having some one with age and experience sufficient to shoulder a part of the care and responsibility.
Wisconsin. S. W. S. I. FREEBORN.

a. My help has always been in the family. b. Mostly women. c. I think I'd rather have an average man than an average boy, but would rather have an unusually bright and thoroughly trustworthy boy of 16 than an average man, and would prefer a very competent man to either. My principal help is a slender girl that I wouldn't swap for either of the above, although she is such a driver that I sometimes threaten to "strike" for less hours or leave for an easier place.
Illinois. N. C. C. MILLER.

a. From $25 to $30 per month, according to the length of time they work. b. Good men, when I can get them. c. The full-grown man every time, if competent, and I want no other, though I am sometimes obliged to hire young men; and I must say that I have had young men 16 to 20 years old that did well. I always prefer to keep my old help year after year when I can; but it often happens that one or more wish to start business for themselves, so I then have to look for new hands. This happens nearly every year. See page 455.
Vermont. N. W. A. E. MANUM.

We hire boys from 16 to 20 years; paying about $10 a month and board, for the first year, for a 16-year-old boy. Some boys are good help at 12 to 14 years, at about $8.00 per month. We rather have boys than men; they are quicker, and will do more work than the average inexperienced man. We keep our boys as long as we can. They are worth more and more every year. But as our work in the apiary lasts only about a month each year, our boys usually leave us after two to four years, for some other more steady work.
Wisconsin. S. W. E. FRANCE.

You are aware that I have students who come here to learn the business each year. From the best of these students whom I can get to work for me, I select my foreman, and this one man is all I have to hire. This foreman is usually from 20 to 30 years of age, and all but one unmarried, so far. My son who has acted in that capacity the past year is only 19 years old, but is unexcelled as foreman of my apiary; 12 to 16 is too young to manage an api-

ary, either with or without help. The man would be the cheapest in the end. I pay from $300 to $400 a year and board. I have work in the winter; but I value their services at just half in the winter what I do in summer. Another thing I wish to mention here. I have had twenty applications for men who have learned apiculture with me, for every one I can furnish. The demand for practical apiarists who are really worth something, is away ahead of the supply, and that, too, at wages about double what farm hands can get.

Michigan. S. W. JAMES HEDDON.

Dear friends, I am very glad indeed to get the above answers, and I am glad, too, to know that in the main they pretty nearly agree with my own experience in hiring help. My great business in life has been in employing help; and not only have I done it for personal gain, but I hope and believe that the inspiring motive has been to solve this great problem of "something to do." Now, then, I think you pretty nearly all agree that it is *not* a discussion between men and boys; neither is it a discussion between men and women; but the whole matter hinges on this: The faithful and the unfaithful, or, if you choose, the half-hearted and the whole-hearted. I have sometimes decided that I could not wear myself out any more in running after boys; but in a very little time I would decide again that one good faithful, whole-hearted *boy*, was worth more than half a dozen *men* who were intent only on passing the hours and getting their pay. The one who enters heart and soul into his work, and strives to make it a *success*, is the one that is helping. We are just beginning to pick strawberries. As we are getting 18 cents a quart for them, it pays to go over a large extent of ground for only a few berries. As fruit is very scarce in our market, everybody is hungry for it. My first mental question was, "Where is the boy who will get these few berries—who will get them *all*, and not waste his time, nor eat the greater part of them?" I instantly fixed my mind on *one* boy whom I knew would be faithful in every respect. He would not need any watching, and there would not be any doubt in regard to the result of his search. He could not get them all before schooltime, so help was needed. After running over in my mind at least half a dozen, I decided on one of the very smallest. He has all the qualifications of the other one, and I am sure, without saying any thing to him about it, he will not eat a berry without permission, during his two hours' work. A few days ago when I was discussing with the foreman about trusty boys, this boy overheard our remarks, and looked up with a bright, manly face. Said he: "Mr. Root, am I a good boy?"

"Yes, H.," said I at once, "you *are* a good boy;" and I mentally added, "May the Lord bless your faithful, honest little soul." And my prayer is now, "May God help us to so educate our children that there shall be *more* faithful, honest ones." It needs no spirit of prophecy to say that such ones will rise. Why, no matter how many crowds are going here and there for work, there will *never* be enough of the real honest and true—the real genuine nobility of the earth, and the *salt* of the earth. May God help us!

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HONEY STATISTICS.

The following are the rest of the statistical reports, which came too late for insertion in our last issue. Some of the correspondents were away—or, at least, in the far corners of the United States, so that their reports came in a little late.

ARKANSAS.

W. H. Laws, Lavaca. W. C. 6-2.
a. b, 2; outdoor.

CALIFORNIA.

G. W. Cover, Downieville. N. 5 31.
a. 80; outdoors; b. 80; in box and Langstroth hives outdoors.

W. W. Bliss, Duarte. S. E. 5-23.
a. 5; outdoors; b. 15; outdoors. The season so far is far above the average.

Wm. Muth-Rasmussen, Independence. E. 5-20.
a. 2; outdoors; b. don't know; probably the same.

J. P. Israel, Olivenhain, Cal. S. 5-20.
a. 7½; outdoors; b. 10; outdoors. No cellars for bees are used here.

R. Wilkin, San Buenaventura. S. W. 5-25.
a. 6; outdoors; b. 5; outdoors.

GEORGIA.

J. P. H. Brown, Augusta. E. C. 5-22.
a. 10; outdoors; b. 20; outdoors. Bees mostly kept in the old box gum.

INDIANA.

T. H. Kloer, Terre Haute. 5-27.
a. 5; nearly all on account of queenlessness. Wintered outdoors. b. There was little loss during winter, but during the present month many have died of starvation, dwindled away, or swarmed out. Bees are just beginning to make a living.

KANSAS.

Frank H. Howard, Garden City. 5-23.
a. 10; outdoors.

MICHIGAN.

W. J. Carroll, Otsego. S. W. 5-26.
a. 90 in cellar, loss 1; 10 outdoors in chaff, no loss. b. The loss in this neighborhood is very light, not more than 10 per cent. Bees wintered in chaff are in much the best condition.

MINNESOTA.

A. F. Bright, Mazeppa. E. 5-24.
a. 25, cellar; b. 20, cellar. The loss in cellar was comparatively light, greatest loss being after their removal from the cellar, on account of the cold backward spring.

MASSACHUSETTS.

A. A. Sanborn, Westfield, Mass. S. W. 5-22.
a. Loss very light outdoor. b. Loss very light; both methods.

OREGON.

George Ebell, Baker City. E. 5-23.
a. 100 per cent. b. Outdoors in chaff.

TEXAS.

B. F. Carroll, Blooming Grove. 6-2.
a. None; outdoors in S. hives. b. None; outdoors.

VIRGINIA.

J. W. Porter, Charlottesville. C. 5-24.
All outdoor wintering in Virginia. My own bees mostly slaughtered by foul brood. Bees generally wintered well; small loss.

WASHINGTON.

J. H. Goe, Mossy Rock. 5-24.
b. 25; outdoors in common hives. The winter here was very hard on bees.

W. W. Maltby, Port Angeles. 5-23.
a, b. 7, outdoors.

WISCONSIN.

J. C. Sayles, Hartford. S. E. 5-20.
a. 2, cellar; b, 2, cellar and outdoors.

HEAVY LOSS IN A LARGE APIARY, BY THE MISSISSIPPI FLOOD.

I have just had a severe loss among my bees. I live in the Red River Valley. I had 435 colonies on the first of April, and their increase from that time in three apiaries. On the 30th of April several levees broke in my neighborhood, and the water ran over my place. I put them up on pens four feet high. The water rose so fast, and the current was so strong, that I could not do any thing for

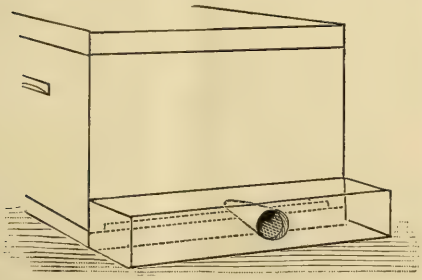
them after it got that high. The pens were washed away, or knocked over by drift. I have only about 40 left, and they are damaged, and the brood got wet. I have changed them into new hives. The water was 30 inches deep in my house. Some houses were washed away, and nearly all fences are gone, and crops destroyed. A great deal of stock was drowned, but no loss of human life that I have heard of. Some of the hives have been found in the woods, with a few bees in. The dead brood smells bad. Will it cause foul brood?

Rush Point, La., May 24, 1890. W. J. DAWSON.

No, sir. Foul brood can not start without a seed, any more than corn can grow where none is planted.

IMPRISONING TROUBLESOME ROBBER BEES, AND PUTTING THEM TO HONEST WORK.

I applied the wire cone to a use the other day that I am very much pleased with. Robbers got to work at a nucleus, and were raising quite an excitement. I made a box 3 x 3 inches, and as long as the width of the hive, with no bottom or back. The top was of double wire cloth, so they could not feed through it. Then in the front I bored a two-inch hole and put in a wire cone 2½ inches long, pointing inside. This box I then fastened over the en-



ARRANGEMENT TO PERMIT BEES TO GO INTO HIVES, BUT NOT TO GET OUT.

trance of the hive being robbed, and you should have seen the robbers pile into that cone—just where I wanted them. Soon they were all in, *out of my way* in working for the rest of the day. I then took them back into the cellar for three days; and when put out they remained in that hive. So I not only helped the weak swarm, but got the robbers nicely cornered, and stopped their nosing around, and stinging, when every thing else might have failed. This plan may not be new, but I have failed to see it in print; and I give it, thinking it may do some one some good. H. P. LANGDON.

East Constable, N. Y., Apr. 16.

Friend L., your experiment is quite old. As much as ten years ago I gave an account of it in GLEANINGS. I, too, got a lot of black robbers entirely out of my way; and by setting them in the cellar I made honest bees of them. They did not last very long, however. Either they lost their lives in undertaking to rob somewhere else, or else they were bees so old that they did not have very long to live. They lived long enough, however, to strengthen up my weak colony, so that the queen could fill it with brood. In my case, I presume that these black robbers came from the woods. If it were neighbors' bees, however, we should be careful about trespassing on any of their rights.

CARNIOLANS, AND THE POSITION OF GLEANINGS IN REGARD TO THEM.

By a late number of the *Apiculturist* and one or two of the other bee-periodicals, we note that one or two writers think the position of GLEANINGS is rather unfavorable toward the Carniolans. In fact, one scribe intimates that, because we sell Italians, therefore we condemn Carniolans. Why, the facts are, friends, we could sell Carniolans as well as Italians: At one time we were seriously proposing to locate a Carniolan apiary; but the few colonies we tested did not prove to be a desirable race to sell or recommend, and we thought we would wait for further developments. With us the Carniolans were not very gentle. The progeny of one queen were the crossest bees we ever had in the apiary; but then, she may have been crossed with a black drone; but from the *looks* of her bees it was impossible to tell whether she was pure or hybrid. We also found that the Carniolans were disposed to swarm rather to excess. However, as we do not wish to appear partial we are glad to give a good word for them. In the last *Bee-keepers' Review* we find the following editorial:

THE CARNIOLANS GREAT BREEDERS.

This is the first spring that we have had several good colonies of Carniolans in a normal condition—that had not been exhibited at fairs the previous autumn. That they rear more brood early in the season than do the blacks or the Italians, there is *no question*. It was a surprise to us to see the enthusiastic manner in which they go at it; as though brood-rearing had filled their minds to the exclusion of all else. It makes no difference if no honey is coming in, and only a little remains in the hive, brood-rearing is kept up to the very highest notch until the last drop of honey is consumed. Even with our present cold, rainy, and late spring, three colonies of Carniolans swarmed May 23; and at this writing (May 27) the Italians have made no preparations for swarming.

We all like bees that get to the front early in the season—that "show up" with hives running over at the blossoming of the clover—but, unless these bees will "turn to" and gather in the harvest when it comes, our enthusiasm will suffer a rapid decline. In this latter respect, the Italians never disappoint us. When the harvest comes they are as completely carried away in gathering honey as the Carniolans now are in raising brood. If the Carniolans will gather honey, when it comes, with the same energy now displayed in breeding, they will be the bees for us; and it is with interest that we shall watch their behavior in this respect, and report results.

Perhaps we have not had fair samples of the Carniolans. We hope the majority of them are, however, better than those we tried. What we are all after is a race of bees to breed early, are prolific, good workers, and but little inclined to swarm, whether it be Italians or Carniolans. Beauty or color ought to be a secondary consideration.

FURTHER PARTICULARS IN REGARD TO THAT HEAVY LOSS IN NEW YORK.

You ask for a more definite report on my bees. I built a cellar, a honey-room, and a shop, 18x20—cellar full size of building, base laid in mortar, 6 ft. high, with drain under the base. It being so wet all winter, the ground in the cellar become very wet. I put the bees into the cellar Nov. 30; set them 10 in. above ground, three and four tiers high, with open bottom, and honey-board shoved part of the way off. It got very warm at first; then I opened the cellar door at night; left windows open all

the time, except shutters. It was very dark when the door was shut. The combs did not mold. I set my bees out Jan. 6, and Feb. 12 I left them out two days and then it turned cold, and snowed. I took 1000 lbs. of honey, top storage. I don't think it was the cellar, but the warm winter, and honey-dew. I will give you some of the losses:

	CELLAR.	LEFT.
John L. Van Olindo,	117	3
Peter Livingston,	60	4
W. S. Ward,	300	150
I. Hallenbeck,	200	loss heavy
W. Wright,	400	" "
H. Martin,	70	" "
H. Bradt,	90	6 or 8 left.

These were all in cellars that have wintered well heretofore.

If you want definite statistics I will try to get them. There are others who have lost. It is wet, cold, and backward for bees. L. MARKLE.

New Salem, N. Y., May 22.

TOO SMALL AN ENTRANCE FOR THE CHAFF HIVE.

I like the Dovetailed hives to hive in; but with no bee-cellar to put them in for wintering, I will take the chaff hive all the time for the permanent home of the dear little bees. I have tested it, and found but one fault; and that is, the 8x⅜ entrance is too small for hot weather, and I often have to raise the cover to keep the bees from clustering outside. I should like to tell you how much good Our Homes talks are doing, but I have not time. May God ever be with you. LUCINDA A. ZINN.

Philippi, W. Va., May 3.

We formerly made the entrance to the chaff hives only 8 in. long. Others have mentioned that this was too short, and our own experience convinced us as much. We have recently made the entrances full width of the hive, and we believe the change will be appreciated.

SELLING SECTIONS BY WEIGHT.

I object strongly to your statement that section honey is sold by weight. Everywhere I have been —Boston, New York, Washington, and even our own little local traders, invariably sell them (at retail) by the piece, no matter whether 12, 14, or 16 ounces, at the same price. I have no doubt that 99 out of every hundred retailers do the same thing all over the country. E. C. NEWELL.

Brookfield, N. H., Apr. 30.

Friend N., I do not know that I ever went into a grocery in any town or city where they sold sections as you say, without putting them on the scales. Why, the very idea of selling three-fourths of a pound at the same price as a pound, or even a pound and a quarter, seems incredible. Honey commands pretty nearly the price of butter. What would become of the grocer who would attempt to put off 12 ounces of butter for a whole pound? Perhaps we had better settle this question through the Question-Box.

LOSS IN MINNESOTA.

There was very serious loss in this county, from dysentery, caused by honey-dew. Some localities did not suffer so much as others. Colonies were left in very weak condition. While I lost but one colony in 40, I should estimate my loss in bees at 10 per cent. Others have lost 50 per cent in colonies, and 75 per cent in bees (estimated).

N. P. ASPINWALL.

Harrison, Minn., May 20, 1890.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

MARKET-GARDENING JUNE 15.

In my last I considered at considerable length what we should do with such a surplus of water as we were then having. Well, almost before my letter was in print it stopped raining and we have had warm sunshiny days almost uninterruptedly until the present time. I thought that, with the amount of rain we had had, we certainly could stand a couple of weeks, or even a month, without suffering. I soon found out my mistake, however. The ground had been so thoroughly soaked that our clay soil settled down about as hard as if it had never been plowed. Then when the drouth came, the ground cracked open until the cracks through the strawberry-bed were large enough and deep enough to drop strawberries—that is, little ones—clear out of sight. When a little rain came, the water just ran into the cracks and seemed to do very little good, comparatively. Our transplanted celery and cabbage did not prosper at all, unless the beds were heavily sprinkled with water from the windmill, and then loosened up by a sharp steel rake. This saved them, but it was almost more work than the plants were worth. Under the circumstances, about the only course is level culture, and plenty of soft mellow dirt. With the soft mellow dirt we can fix the ground so it would stand a drouth of two weeks, or a month, easily. The ground that was planted *before* the terrible rains, amounted to but little; I put in the potatoes as nicely as I ever did; but there came up a great wetness, and settled the clay down so solid it was like a brick. The potatoes tried to get up through the crust, but gave it up, and a great part of our potatoes on the creek-bottom land are *under the crust* yet. Cultivating between the rows fixes the dirt between the rows well enough, but it does not help that around the potatoes, so our first planting will be a failure. Ground that had *not* been planted was plowed up, rolled, harrowed, then rolled and harrowed again and again, until we had fine mellow soil. Corn, beans, peas, etc., planted in that fine mellow soil, without even a drop of rain, came up and grew to my full satisfaction. Without this fine mellow soil and perfect tilth, it is almost impossible to get a decent crop, no matter how much manure or phosphate or any thing else you put into it. To sum up the matter, when we have such heavy rains as we have had during the past spring, I do not know *what* to do. Does anybody else? True, we can wait until the rains are over and until the ground is dry enough to pulverize properly; but we shall have to go without early stuff. Sandy loam, with a gravelly subsoil, would probably help the matter greatly; but I fear that underdrains and overdrains are both inadequate for such severe rainstorms. We can, however, rejoice at the excellent prices. June 10 there was scarcely a strawberry in Medina, and whoever had them to put on the market could get his own price. We still get 20 cts. per lb. for

lettuce; 10 cts. for spinach and beet greens, There is another thing that I am rejoicing over: When every thing is exactly right, how wonderfully crops may grow and mature! Very few, in my opinion, have witnessed the possibilities of market-gardening and fruit-growing. We get glimpses, however, occasionally, and I am getting some of them now, and that makes me happy.

OUR HOMES.

If ye, then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?—LUKE 11: 13.

As it was children's day, and other matters occupied the attention of the Sunday-school, our lesson for last Sabbath was not taken up at all. But it has been taken up by me during the week, in a way that I have seldom before taken up any lesson. The golden text, "Ask, and it shall be given you; seek, and ye shall find; knock, and it shall be opened unto you," has always had something startling in it to me; and then the words afterward, about a child asking its father for bread, or for a fish, or for an egg. Would any *father* give a stone or a serpent or a scorpion? Surely not. And right close upon this vivid illustration comes the promise of our text to-day: "If ye, then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?" Please notice that, instead of saying that God will give bread, fish, etc., or needful food, the Savior says he will give us the *Holy Spirit*, implying, in a most positive and direct manner, that the Holy Spirit is the summing-up of all things. And the more I think of it, the more sure I am that the one thing needful to us all—yes, to every reader of GLEANINGS, is the Holy Spirit. If the Holy Spirit is in our hearts, it takes the place of every thing else. I have been so much impressed with this that I have been praying with unusual earnestness for that Holy Spirit in my heart, that is promised with so much emphasis. You will notice that, in all of Jesus' talk, in all his discourses, that seems to be the great theme. He is constantly exhorting us to more faith in God. Just before that part of the lesson which I have taken up, is a most earnest exhortation to importunity in prayer. This means, as I take it, that we are not to get *tired* of praying, nor to lose faith. We are to plead with God as we would plead with a neighbor who was unneighborly. Even though he should snub us, we are to have energy and perseverance, and faith enough to continue to beg and entreat and implore, even though he should say, right out, that he would not accede to our request. Now, we are to hold on to *God's* promises in the same way. We are to beg and beseech, no matter if we are discouraged by seeing only continual badness in our own hearts; and we are to continue to implore and plead for his Holy Spirit to take the place of the badness. What has been the result of my continued prayer for the Holy Spirit in my own heart? Perhaps you may smile at the idea of my expecting an answer to such a prayer, when the prayer had been uttered for perhaps only a little more than a week back. Well, dear friends, I have become so much accustomed to seeing some answer to my prayers almost immediately that I have begun to take it as a matter of course—not when I pray in a half-hearted fashion, as a mere form, or as a sense of duty; but when I pray in real *dead earnest*, for any thing I feel is right and proper, I have been led to expect some sort of answer; and the answer in this case has been a little different from what I exaected it to be. This matter of the Holy Spirit has been for years rather confusing to me. What does it mean? I have often before prayed for the presence of the spirit of Christ Jesus in my heart; and I do not quite know what it was unless it was our recent lesson that prompted me to use the words of our text, and ask the Father for the Holy Spirit. Well, the effect has been to give me more of a spirit of charity and love toward all humanity than I perhaps ever have had before; and I have also been able to see the consequences of a lack of faith and a lack of charity in others, in a way I have never seen before. Why, it seems to me, as I think of it this morning, that one of the greatest troubles we have to contend with is a lack of faith and a lack of charity in each other. The reason why many make *failures* in life, if I am correct, is because they are so constantly thinking evil of other people; and in the same line they doubt God's providence and *God's* promises, and almost think evil of the great Father above. I want this talk to be helpful to you, dear friends, therefore I want to emphasize this uncharitableness by some illustrations that we all can enter into heartily. Uncharitableness is a disease. It gets hold of us, poisons our best feelings, warps our judgment, makes us sneering and ironical; distorts, twists, dwarfs, and cramps the whole universe round about us. The most prominent illustration I can think of in regard to bee-men is the false statements in regard to the adulteration of honey. The thing has crept in and grown until not only our periodicals but our standard works, our cyclopedias, and our medical books, have got the disease, and made a shameful show of the depravity of humanity where there is no such *depravity*. What a sad thing! While Dr. Kellogg's book was on our tables a few days ago, one of the office hands turned over to the "Adulteration of Food," and there we found that foolish story repeated, about manufactured comb honey. Our good friends of the *Farm and Fireside*, in a lengthy editorial a few days ago, brought up the whole matter of adulteration of honey and the adulteration of candies, and ever so many other things, giving their readers the impression that humanity at large is so corrupt that we can hardly be sure of any thing. Now, this hasty, thoughtless manner of denouncing the great public at large—of denouncing the *business men* of our nation, all comes, if I am correct, because of a lack of the Holy Spirit; because we have

not that Christian love in our hearts that we ought to have, and that *strong reluctance* to repeat words of censure or reproach, that all of us ought to have. Oh, if newspaper men, magazine men, and publishers of cyclopedias, would, as they commence their work in the morning, pray from the heart that the Holy Spirit might keep them from these mistakes and evils, what a grand thing it would be! I suppose you have already thought of my bright little text right here—"Thinketh no evil."

A great part of my acquaintance with the world comes through the letters day by day—letters that I am obliged to read in order that I may do justice to my fellow-men. While most of these letters breathe a spirit of charity and love, there is occasionally one from a poor brother or sister who has got things mixed and wrong. He supposes he has been wronged and cheated, when nobody has had a thought of such a thing. How sad are such cases! I once had a teamster who was plowing on the creek bottom. He was right close by the railroad. His horses became excited, and made him some trouble with his plowing. He, poor fellow, became disturbed and excited too, and in his disordered state of mind he would have it that the *engineer of the locomotive* was running back and forth, sending the cars spinning hither and thither, just on purpose to annoy *him* and frighten his *team*. I had hard work to convince him that the railroad men never so much as thought of him and his team away down at the bottom of the bank. May be they did not see him at all; but he did not think it unreasonable or impossible that these men who handle great cars and locomotives, and whose time is worth ever so many dollars an hour, would stop and move great heavy machinery just on purpose to bother *him* with his comparatively *unimportant* labor. I often think of this illustration. Only yesterday Ernest wrote a whole page to a poor friend, to try to convince him that he was wrong in thinking that we had struck him a damaging blow in print, because we wanted to get the *business* away from *him* that he was doing. Why, the poor man did not even know that every member of the Root family have been wishing and almost praying for weeks back that the orders through the mails might stop. I presume I never would have mentioned it had not this circumstance brought it out. But, dear friends, I have actually felt pained when a clerk has opened a letter containing a hundred dollars, and sometimes two or three hundred. For so many years I have been in the habit of thanking God for such letters, that it *does* seem a little strange now to feel sad when they come. We have had more business than we knew what to do with. We have stopped sending out price lists and advertisements; we have discouraged those who inquired about goods—that is, hives and sections, because we knew how unable we were to fill orders promptly; and yet this poor friend would have it that we were greedy for the small business he was doing, and wanted it *all ourselves*. When by some blunder an advertisement was left out that should have appeared, two or three good friends have almost insisted that A. I. Root kept it out because he was afraid it would injure *his* trade. And then when I have tried to explain, one or two have accused me of being untruthful. Why, bless your hearts, dear friends, do you think it possible, with all my cares and burdens, that I want what justly belongs to *you?* Think hard of me, if you choose, for our neglect during the past few weeks. You may even call me names, and accuse me of being lazy and half-hearted, and you may say I have got so I do not care as I once did; but, please do not hurt me any more by insinuating that I am *greedy* for *your* business. What a very sad picture I should present, if, after all these blessings God has sent me with such unstinted abundance, I should be greedy for still more property, more business, and more *anxiety*. Many of the things you, in your thoughtlessness, have accused me of, I never knew any thing about; for it is *impossible* that any one human being should be able to compass or keep track of so much. And in saying this, please do not understand me that *no one* is looking after your kind orders. Others have taken my place. Other good kind Christian hearts are reading your letters, many of them, and dictating answers in my place. Perhaps they do not *know* you as I do, and very likely they are so cramped for time that their answers are brief; but I am sure that a kindly feeling actuates them all. I am sure that the Holy Spirit has a permanent lodging-place in the hearts of the most of these friends and helpers who are gathered about me, doing their part to the best of their ability, and as I would do it if I were able to do it all.

During revival times we often witness the workings of the Holy Spirit in the hearts of men. A few weeks ago my old pastor, A. T. Reed, wrote me that he would be very glad to have me pass the Sabbath with him in a neighboring town, that I might assist him in the revival work now going on there. I could not well be spared for even one day, at this season of the year, especially at this present season; but I arranged to leave home late Saturday night, and to get home early Monday morning. Almost as soon as I stepped from the train Saturday evening, I was ushered into a church full of pleasant, wide-awake, earnest people. Their very faces inspired me; and I talked to them for forty minutes, perhaps, as well as I ever talked in any similar audience. Before the meeting closed, great numbers of young and old, especially the former, arose and testified for Christ Jesus. During the Sabbath I attended five different services, taking more or less part in all of them. I came home with a new inspiration in my heart for the cause. It was arranged that my stay over Sunday should be with a family who had lately come out on the Lord's side—at least a grown-up son and daughter had, and we hope and pray that the father will follow soon. The son and daughter were perhaps from eighteen to twenty, and I was at once impressed with the beautiful characters of the two. They were bright, enterprising,

go-ahead, remarkably intelligent, and at the same time their lives were consecrated to the Master. They especially won my respect and admiration, the more so, perhaps, from the fact that God had just called home the mother of the household. She died in March. In order to save expenses, and at the same time make the home pleasant for the bereaved father, the daughter had, with much zeal and devotion, undertaken to fill the mother's place in the household. The responsibility was a little new to her, and it touched my heart to see how anxious she seemed to have every thing pleasant for her guest, and to do as her mother would have done had she been alive. She did all the cooking and housework. Before the evening meeting she came out with a pleasant face, and called us in to supper. I replied, in a vein of pleasantry:

"Why, my good young friend, I did not know we were to have any supper, and it hardly seems as if we need any after our most excellent late dinner."

"O Mr. Root! is it really true that you mean exactly what you say? Did you indeed consider it an excellent dinner? You do not know how anxious and troubled I felt about it; and I was so afraid that I should not have every thing just right, or just as mamma would have had it."

As she spoke the words, a look of tenderness came into her face as she thought of the dear mother who had so recently gone; and it gave me, too, a glimpse of that anxious spirit which I had before seen beaming from her expressive hazel eyes. Had anybody asked me at the time what her complexion was, or what the color of her hair was like, I could not have told, for I rarely notice such things; but I should have said, notwithstanding, that she was one of the most beautiful characters (perhaps I might as well say *most* beautiful young women) that I had ever met. Now, please do not think that I am partial; for her brother was as handsome a young man as one often meets. The attraction in both was, however, in the line of "pretty is that pretty does." These two had recently given their hearts to Christ under the teaching and preaching of our dear brother Reed, who once, a few years ago, in God's providence, brought me from darkness into light. Brother Reed has grown since then, and God's work is growing rapidly in his hands. Some of you who see this, doubtless know him and have learned to love him. As his chosen field of work is evangelical, he may come into your neighborhood some time. If so, do not, I beg of you, miss seeing him and hearing him talk. Well, my heart was full of the Holy Spirit during this Sunday work. It was an easy matter to love everybody—even the ruddy-faced saloon-keepers that abound in such plenty in the town of Lorain. And is it any wonder that I had several times thanked God for giving me glimpses and even a brief acquaintance with two such nice people as this boy and girl I have been telling you of?

Of course, I recognized that they were human, like the rest of us—that close acquaintance might develop faults in their characters that seemed so perfect; but, dear friends, what is the harm of thinking well of everybody? My good old mother sees so much good everywhere in everybody, that it is a standing joke among the children. If she chances to talk with a tramp or a Jew peddler, she bids him good-by, with the firm conviction that he is a good man; and I know by experience that the tramps and Jew peddlers—in fact, almost everybody else, leave her with a feeling in their hearts, if not out-spoken, "Well, *there* is a good old lady, any way." Two or three times I have heard her called an old saint. Please excuse this much in regard to my mother, dear friends. It will probably be a long, long while before anybody calls this son of hers, who is writing to you, a saint or any thing approaching it. But is it not our privilege, dear friends, to see *saintly qualities* in our friends and *neighbors?*

Let us now go back to the neighbors I was speaking about—a boy and girl of eighteen and twenty—the two whom I had learned to consider almost as young saints—at least, during my brief Sunday acquaintance. Sunday afternoon, it being decoration day, I spoke briefly to an audience of several hundred. There were four or five speakers present, so we all spoke briefly. At the close of the talk, some old neighbors who used to live in Medina came forward and took me by the hand. As they lived near by, I was constrained to step into their home a few minutes between meetings. A young man—one of Ernest's old playmates—was among the converts, and the Holy Spirit had certainly found a lodging-place in his heart. The poor mother had not been attending the meetings, and she had not yet risen to that point where love, hope, and charity brighten and ennoble "our neighbors." I hope she will excuse me, if she ever sees this, for quoting one single expression from her talk. When they asked me where I was stopping, I gave them the name. They were new comers, however, and not much acquainted. Finally the mother spoke:

"Oh, yes! I know now. It is where that red-headed girl lives, who keeps house for her father."

Just then the words "red-headed girl" jarred particularly on my spiritual state. It is a common expression, and may be that almost any one has at times indulged in just such words. Dear friends, is it right to speak in that way of any neighbor? I had not noticed the color of her hair before, any more than to remember that it was light; and as she spoke feelingly of her love for Christ, her eyes were beautiful, and her face was beautiful, and her hair too. It seemed in keeping with her peculiar complexion. I noticed, as she sat down to the table, somewhat fatigued with her labors over the stove, a flush on her cheek. I knew what brought it there, and I admired her all the more. If there is any class of women I respect and admire more than others, it is those who voluntarily choose to do their own housework; who know what it is to cook and sweep, to iron and wash. The words "red-headed girl" kept ringing in my ears They called up recollections of

times when I have thoughtlessly and unfeelingly spoken of my friends and neighbors with a lack of charity. May God help me to do so no more. May that Holy Spirit I have been telling you of help me not only to speak of, but to look upon every human being as something sacred and holy—as a piece of God's handiwork. And may this same Holy Spirit help me to see the good and saintly traits in fallen ruined humanity.

"O Lord God, help not only my poor self, but help every reader of GLEANINGS to pray often, in faith believing, for that Holy Spirit that Christ Jesus thine only Son promised to those that ask. Help us that the influences of the Holy Spirit may find such a lodging-place in our hearts that kindness and love shall characterize our every thought and word and deed; and may its influences brighten and ennoble our poor hearts that are so prone to wander after the bad. Help us to remember our sacred calling; help us, who have enlisted under the banner of the cross, to remember our profession; help us to see light ahead, and not darkness and ruin; help us to look up to the great God above, who created us in his own likeness and in his own image. Save us from the peculiar temptations that so often beset at least most of us, and which tempt us to see only the defects and misfortunes of the neighbors round about us; help us, O Lord, to see the God part, and inspire us with that Spirit, that we may be able to encourage and bring out the good; give us, we pray thee, of that Holy Spirit according to those unfailing promises, as in the language of our text to-day."

Come, Holy Spirit, heavenly Dove,
With all thy quick'ning powers;
Kindle a flame of sacred love
In these cold hearts of ours.

BUSINESS AT THE HOME OF THE HONEY-BEES.

SOME PRETTY SEVERE CHARGES AGAINST A. I. ROOT.

DON'T be troubled, dear friends; it is not somebody else that I am going to complain of, it is only myself; and the particular reason why I speak of it is that I may ask you all to be slow in condemning your friends and neighbors, and to remember that there are almost always palliating circumstances that we do not know all about. In the past two or three issues I have told you that things were in a rather bad shape here this present season, on account of the unexpected rush for goods. Amid it all, however, we have tried to be prompt in answering all inquiries, and we have tried hard to tell the truth. I do not know that I have ever exhorted our clerks more, relative to making some sort of answer to every complaint that has come, than this present season. Notwithstanding, however, a great many of our friends have had great reason to complain, and perhaps good reason to say hard things of your old friend. The following letter illustrates this:

Dear Sir:—I write you once more concerning the supplies I ordered of you six weeks ago, which have failed to materialize. After four weeks had passed I wrote you about the matter, and you claimed that orders had overwhelmed you so that you had been running night and day, but would ship my goods the next day (May 30).

After reasonable time for the shipping bill to reach me, I wrote again for the reason you failed to do as you agreed, and you failed to ship, or explain any thing. I have talked with several bee-keepers about the matter, some of whom are readers of GLEANINGS, and all agree that your promise to me of May 29, that you would ship my goods to-morrow, was a base deception. If you could not fill the order, say so like a man. My bees are swarming, and I shall get supplies elsewhere. A portion of the goods will be worthless to me before you get around, if you ever do. I demand my money back by return mail. F. F. HARRINGTON.

Hartwick, N. Y., June 9.

Whoever undertakes to carry on a business requiring many hands, should take into consideration the fact that sickness and accidents will occur more or less, as a matter of course, and two or more should be trained, if possible, for the very important posts. The proprietor ought to ask himself the question almost daily, "What should I do just now if so and so should be sick or kept away?" This I have tried to do to the extent of having one or more "loose men" around, with nothing particular for them to do. This season has been no exception. I mentally wondered several times what I should do if a certain one were disabled or kept away, and in a very few days the very thing happened. Sometimes two valuable hands were laid up at once. During the very height of our rush I told my wife that nothing would make greater disaster than to have something happen to "John," who takes the entire charge of orders, and tells people what we can do and what we can not do. Well, John sprained his ankle at this very crisis, and was kept from the office nearly two whole weeks. But even when he could hardly endure the pain, the clerks were running to him with inquiries concerning business. This state of affairs threw our good friend Harrington behind, with a lot of others. Although Ernest was pretty well burdened with the journal matter, bees, and attendant letters, he took Mr. Calvert's place as best he could, and wrote the letter promising that the goods should be shipped May 30. He did this because "Jacob" told him they could *surely* go at that time. But there are other "big guns" in our establishment besides Jacob; and somebody overruled *Jacob's ruling*, it seems, and, in fact, in John's absence there were several who had been promised, and the promises could not well be *all* fulfilled at once. The postal card which friend H. says was not answered was answered promptly, but perhaps not as explicitly as the urgency of the case demanded. About the time the goods *did* go, I got hold of the transaction and declared that this shipment should be put on the next train, even if *it stopped everybody else.* Now, I do not know that even *I* had a right to say this, for a promise is as binding toward one man as toward another. It is true, that

although Ernest gave the positive promise that the goods would go promptly, they did not go until *seven days* afterward. Under the circumstances, friend H. was quite excusable in deciding that Ernest's promise was a "base deception." If he *knew* Ernest, however, he would never think of accusing him of trying to deceive anybody. Ernest is sometimes forgetful; but when he made the promise, he had no *thought* that it would not be kept. Now, I am very well aware, friends, that *apologies* are very well, so far as they go; but in cases like the above (and I fear there have been quite a number of them), the only thing that can be done is to ask these friends who have been "humbugged" by receiving promises that have not been kept, to make out their bills for damages. The only honorable apology, in my opinion, for such kind of business, is a *dollars-and-cents* apology. Friend H., make out your bill, and we will try to meet it. Meanwhile, A. I. Root begs that you will put out your hand with as much good grace as you can, under the circumstances, and "shake." Yes, even if we are going to quarrel, let us shake first; and if we can not shake *after* we get through, we shall be *so much* ahead any way. Hundreds of dollars have been already sent back, and a good deal of it just as soon as the letter was received, because the order was to ship at once or not at all; and we stand ready to return every dollar that has been sent us just as soon as we are told to, providing the goods have not already gone.

EDITORIAL.

Thou hast been a shelter for me.—PSALM 61:3.

WHY DO THE BEES KILL OFF THEIR DRONES IN JUNE?

So many have asked this question during the past few days we have thought best to answer it here. I know of no other cause for such a state of affairs than a break in the honey-flow or pasturage; and, as a general thing, it indicates that you had better commence feeding until honey begins to come. If you do not, you will lose in brood in a way that will be damaging to your colony, even if you do not lose the colony outright by starvation. Watch the honey-flow, especially if you have colonies nearly destitute of stores.

HOW WE ARE GETTING OUT IN FILLING ORDERS AT THIS DATE, JUNE 13.

WELL, dear friends, we are still running night and day, with 500 or 600 orders ahead of us; but although the number of orders is large, the amount of goods to be sent is not nearly so great, for the orders are small, comparatively. We expect by July 1st to be up in every department. In fact, every thing now goes almost by return mail, or by return express or return train, unless it calls for hives and sections. Our wax-room is so well ahead they have come down to ten hours a day, so you can have any thing in the line of foundation right off.

QUEENS AT LOW PRICES.

WE are well aware that queens are offered by different parties lower than we dare undertake to furnish them. Those ordering should remember, however, that we have for years been in the habit of having queens on our table every day, ready to be sent out by the first mail. Now, at least some of those who offer queens at low prices do not send them promptly. Perhaps our readers know how many, better than we do. Another thing, those who order queens often live some distance from their postoffice. People write us about making a trip to the postoffice every day for a week, and that where the postoffice is three or four miles away. Imagine the trouble and expense it makes when the queens are not sent promptly. Another thing, those who are new in the business often fail in getting queens to go through alive. I fear that some of our younger friends have thoughtlessly figured up that they could do well in selling untested queens for 50 cents; but when they come to find, though, in experience, that half of them or more die before reaching their destination, they sometimes get into real trouble. Now, I do not make these remarks because I wish you to send your orders to us, but because I wish those who propose advertising queens at very low prices would think well and be careful before they embark in the business.

THE NEW WATER-CURE TREATMENT.

A HOST of letters have been received since our last; and the greater part of them—in fact, I might say all—who have purchased the secret of Dr. Hall speak in praise of this drugless remedy. Many give actual experiences of where it has been the means of saving life. They say, too, that before going to Dr. Hall, they had applied to our physicians right and left. If this is true, it is a rather sad state of affairs; but I can hardly believe that the average family physician is ignorant of remedies that have been laid down in our medical books, and even our common family doctor books, for ages. I am inclined to think that those good friends who have invested their $4 00 are a little prejudiced against our doctors, and a little biased in favor of Dr. Hall. I am, however, well satisfied that even Dr. Hall's manner of doing business has been the means of saving life, and giving health to many more. Then is it not right for him to take $4.00 from the sick and suffering for his little pamphlet? These friends I have been speaking of try to make out it is right, even though the treatment *is* in our common doctor books. Now comes the question, "What is right in such a state of affairs?" Why, it seems to me to be a very simple matter. All valuable information comes to us through books and periodicals. Let Dr. Hall give us a nice little book, fully illustrated, and filled with testimonials and experiences from those who have used this treatment. Sell this book at about the price similar books are ordinarily sold. By this means he will do a hundred times more good, and I think very likely he will get just as much money. I myself should be very glad to give the book a recommendation. I should like to have it, however, embody also the opinions of some of our leading physicians.

BEAUTY VERSUS UTILITY, AGAIN.

ON page 434 of GLEANINGS for June 1, in speaking of some yellow bees sent by Mr. Jacob T. Timpe, the type made us describe them as "yellow-banded workers." What we meant to have said was, "*Five* yellow-banded workers." Through the sickness of several of the clerks, the writer was obliged to attend to other work and omit some proof-reading. In this connection we would say that Mr. Timpe takes some exceptions to our having suggested in

this editorial the possibility that these four and five banded bees *might* contain some Cyprian blood. He assures us the bees in question are from pure Italian stock, and are *not* of Cyprian descent. In proof he sends another cage of bees which are indeed handsome five-banded bees. Though they resemble very closely some yellow Cyprians they are no doubt of purely Italian origin.

SENDING SPECIMENS OF FOUL BROOD BY MAIL.

EVERY season we have more or less such samples sent in paper boxes, which are often burst open in the mail-bags. The clerk who opens the mail sets the specimen in a certain place until the letter describing it is found. Then the one who examines it to see whether it is real foul brood or not may be careless. They ought not to be in our establishment, for foul brood has cost us already more than $1000, clean cash. The point is, this sending of samples or specimens by mail or express, or any other way, should be stopped. It is very dangerous, and there is not a bit of need of it. We can tell you from description just as well as to see the brood itself; and our text-books and journals have all described it, over and over. Please do not send any suspicious comb through the mails or in any other way. Let all the bee-journals echo the request. If you are afraid it is in your hives, examine the description in our text-books; then if you are not satisfied, state the matter plainly; write to us or some other competent authority. Meanwhile take every precaution against spreading. It should be treated like scarlet fever, yellow fever, cholera, etc. Stamp it out of existence; and by no manner of means give a chance of spreading it by your own thoughtlessness or foolishness.

THE A B C BOOK.

WE have had a great many very kind notices of the A B C book, but never a kinder one, or one that we consider more complimentary, than the one made by Bro. Newman in the *American Bee Journal*, page 363. The following is the notice:

The A B C of Bee Culture, by A. I. Root, has again been revised and enlarged, and the new edition is now on our shelves. It contains 420 pages, and is profusely illustrated. It is the cheapest, and one of the best—if not the very best—of all the books on apiculture in existence. We congratulate friend Root upon the perfection and excellence of his book.

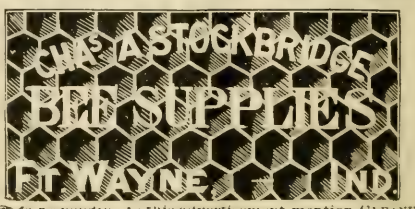
This is more highly appreciated, because friend Newman is not only the publisher of a bee-journal, but the author of a most excellent *bee-book*, and a practical printer besides. This state of feeling between publishers is indeed pleasant; and this is not confined to publishers of bee literature either. When G. B. Lewis & Co. suffered loss by fire recently, it will be remembered they received messages of condolement from other supply-dealers, with offers of assistance. As C. C. Miller said recently, it seems as if the millenium of brotherly feeling and good will were now among apiculturists. The *American Bee Journal* is always on time. We never saw one copy in all the hundreds that have come to us that was poorly printed—over-inked or under-inked. They are always a model in typographical appearance. We are in a position to know that it is not an easy thing to be out on time, nor to make every number of a periodical an exact duplicate of the others typographically. We do not say this because we desire to reciprocate friend Newman's kindness, but because it is something for publishers to emulate.

BEAUTIFUL BEES are always pleasing to the eye.
GOOD QUALITIES are always profitable.

If you want Bees and Queens that combine beauty and good qualities to a *marked degree*, write for circular giving low prices. No circulars sent out unless applied for. **CHAS. D. DUVALL,**
5tfdb **Spencerville, Mont. Co., Md.**
☞In responding to this advertisement mention GLEANINGS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
5tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.
☞In responding to this advertisement mention GLEANINGS.

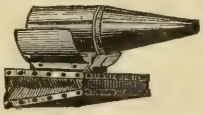


☞In responding to this advertisement mention GLEANINGS.

Look Here! Supplies Cheap

Italian and Albino Queens and Bees; Chaff and Simplicity and Nonpareil Hives.
Extractors, Smokers, Foundation, Surplus Section Boxes, Root's Perforated Zinc. Price List Free. Write for One.
A. A. BYARD, WEST CHESTERFIELD, CHESHIRE CO., N. H.
☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.
Bingham's Patent Smokers,
Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...	$2.00
Conqueror "	3 "	"	...	1.75
Large "	2½ "	"	...	1.50
Extra (wide shield)	2 "	"	...	1.25
Plain (narrow ")	2 "	"	...	1 00
Little Wonder.	1¾ "	"	...	65
Uncapping Knife.....		.....	....	.. 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**
☞In responding to this advertisement mention GLEANINGS.

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TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.

☞In responding to this advertisement mention GLEANINGS.

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

9tfdb **OLIVER HOOVER & CO.,**
Mention this paper. **Snydertown, Pa.**

BEST ON EARTH

ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...	$2.00
Conqueror "	3 "	"	...	1.75
Large "	2½ "	"	...	1.50
Extra (wide shield)	2 "	"	...	1.25
Plain (narrow ")	2 "	"	...	1 00
Little Wonder,	1¾ "	"	...	65
Uncapping Knife.....		.....	.....	1 15

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Send for descriptive circular and testimonials to
1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

ADVANCES THIS DATE, 3c, WHOLESALE AND RETAIL.

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

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Look Here! Supplies Cheap

Italian and Albino Queens and Bees; Chaff and Simplicity and Nonpareil Hives.
Extractors, Smokers, Foundation, Surplus Section Boxes, Root's Perforated Zinc. Price List Free. Write for One.

A. A. BYARD, WEST CHESTERFIELD, CHESHIRE CO., N. H.

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEEN BEES

At 75 Cts. Each.

Pure and First-Class.

I have bred Italian queens 25 years, and am now breeding from the best stock I ever saw. Please try one.
E. D. ANDREWS,
North New Salem, Mass.

☞In responding to this advertisement mention GLEANINGS.

HEADQUARTERS IN THE SOUTH.

FACTORY OF BEE-HIVES, ETC.

From now on I will sell my 4-frame nuclei, with Italian queen, at $3.75. In lots of 5, at $3 50 each. Untested queens, at $9.00 per dozen in June; $8.00 per dozen in July. Satisfaction and safe arrival guaranteed. Twelfth annual catalogue.
9tfdb **P. L. VIALLON, Bayou Goula, La.**
Please mention this paper.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Hybrid queens, 30c; mismated Italians, 40c; all young. W. W. KULP, Pottstown, Pa.

Six hybrid queens for sale at 30c each or $1.00.
L. WERNER, Edwardsville, Ill.

Mismated golden Italian queens during the season at 30c each, a rare chance to get some nice drones for next year's breeding. Address
MRS. ISABELLA TREGO, Swedona, Ill.

Black and hybrid queens at 20c each, safe arrival guaranteed. Stamps taken, 2's, 5's, and 10's preferred. S. F. TREGO, Swedona, Ill.

Any one sending ready-provisioned cage can have black and hybrid queens in July for 20c.
HENRY EARHART, Courter, Ind.

I have about 25 hybrid queens for sale at 30c each, or 4 for $1, all industrious. Send soon to
W. A. BARNHILL, Baird, Texas.

Four black queens for sale at 20c each; also a few hybrids at 30c. WILLIAMS BROS., Burdick, Ind.

Having a few colonies of hybrids to Italianize, we offer for sale 12 or 14 mismated queens for 50c each until sold. Some of the queens produce almost three-banded bees, and their progeny are almost pure Italians. T. L. THOMPSON, Blairsville, Pa.

During swarming season, mismated Italian queens for sale. Those producing worker bees part of which are black, 30c each. Those producing workers all with yellow markings, 50c.
J. C. WHEELER, Plano, Kendall Co., Ill.

FOR SALE.—25 nice, large, laying hybrid queens at 25c each. Send at once if you want nice ones.
F. H. PETTS, Warsaw, Mo.

In Italianizing I shall have 30 or 40 hybrid queens to dispose of. Will sell 4 for $1. Queens are very prolific. L. H. ROBEY, Worthington, W. Va.

Fine, extra-prolific hybrid queens at 20c each; 6 for $1. Send soon, or off go their heads. Foul brood or other disease never known in our section.
T. K. MASSIE, Concord Church, W. Va.

Mismated Italian queens 25c each, and blacks 20c, safe delivered. W. G. HAYEN, Pleasant Mound, Ill.

I have 50 hybrid queens for sale at 25c each.
A. HINES, Independence, Ia.

SECTIONS, $3 PER 1000. Foundation, Alsike clover seed, and Japanese buckwheat, cheap as the cheapest. Special prices to dealers. Send for our FREE PRICE LIST. **M. H. HUNT, Bell Branch, Mich.**
Please mention GLEANINGS. 1tfdb

MUTH'S
HONEY - EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.
PERFECTION COLD - BLAST SMOKERS.
Apply to *CHAS. F. MUTH & SON, Cincinnati, Ohio.*
P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞ *Mention Gleanings.* 1tfdb

1890 FINE ITALIAN QUEENS, FROM bees for business; untested, each 75 cts.; six, $4.00. Order now, pay when queens arrive. 13-16db W. H. LAWS, Lavaca, Ark.

Bee-Keepers' Supplies.
WHY ✣ SEND ✣ LONG ✣ DISTANCES?
SEND NAME ON POSTAL CARD FOR MY NEW PRICE LIST TO
C. P. BISH, Grove City, Mercer Co., Pennsyl'a.
Formerly of St. Joe Sta., Butler Co., Pa.
ESTABLISHED IN 1884. 9tfdb
Please mention this paper.

ALBINO ✣ QUEENS.
I will furnish pure queens of this gentle and beautiful race of bees this season at the following prices: Extra select tested, $1.50; Warranted, 75c.
JOSEPH MOSER, Festina, Wineshiek Co., Iowa.
☞ In responding to this advertisement mention GLEANINGS.

TESTED QUEENS CHEAP
During the Swarming Season.
Prolific queens, producing all three-banded workers, $1.00 each. Six for $4.00.
13-14d **J. A. GREEN, Dayton, Ill.**
☞ In responding to this advertisement mention GLEANINGS.

KIND WORDS FROM OUR CUSTOMERS.

MAILING QUEENS TO NEW MEXICO.

The queens came yesterday in good condition, and I put them in according to directions.
Cimilario, N. M., Apr. 30. J. B. DAWSON.

PLEASED WITH THE A B C.

You are right in thinking the A B C of Bee Culture would suit me, for it does, and I am more than interested in it. W. B. HAMILTON.
Quincy, Miss., May 26.

PRINTED SERMONS.

I am kept very busy now in Christ's service. I am superintendent of the Sabbath-school, class-leader in the church, president of the Band of Hope, and also take the service in the church now and then; and sometimes, when I get to reading your Home talks, I feel as if I should like to shake you by the hand, and say, "Go on, brother; you are doing a grand work for the Master, the result of which only eternity will reveal." I only wish that all the papers that are printed would tell us more about Jesus. It was by reading a sermon by one of your ministers, T. Dewitt Talmage, that I was brought to a saving knowledge of the truth, and that sermon was in a newspaper. A. A. MILES.
Brisbane, Australia, Feb. 10.

[Dear friend M., we rejoice to know that one of our American ministers, through a printed sermon, was the means of bringing you to the Savior. I want to thank you for your frank acknowledgment. May the Lord be praised for such testimony.]

OUR LEADER SHEARS.

About Christmas time I ordered a pair of your Leader shears, also a pair of lace scissors, both of which have proved more than satisfactory. The shears are beautiful. A number of my friends have seen them, and thought them wonderful for the price. MRS. F. M. MAYNARD.
Jefferson, Wis., Mar. 29.

[My good friend, perhaps I should say to you and a good many others who have been rejoicing over the price of the Leader shears, that the factory where they were made has been burned down, and has not yet been rebuilt. On this account we are out of some of them, and have been obliged to substitute others. We purchased, however, so large a stock that we have enough to last for some time to come, with the exception of a few sizes, such as the 6½ and 10 inch.]

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—Received to-day first consignment of new comb honey from Independence, Mo. Very nice white 1-lb. sections, put up in handsome whitewood packages, twelve sections to the case, selling at 15@16: no change in extracted. *Beeswax*, 25.
June 19. CLEMONS, CLOON & CO.,
Cor. Fourth and Walnut Sts., Kansas City, Mo.

ST. LOUIS.—*Honey.*—Very little inquiry. We are in receipt of 6000 to 8000 lbs. of new crop extracted, which is as fine as you ever saw. We quote: Choice comb, 10@12; inferior, 8@9. Extracted and strained, in cans, 6@8; 5½ in barrels for old. New crop, 6½@7½. D. G. TUTT GROCER CO.,
June 19. St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Extracted honey, 4½@5¼ wholesale. Comb honey, 1-lb. secs., 11@12; 2-lb. secs., 8@11. *Beeswax*, 23@27.
SCHACHT, LEMCKE & STEINER,
June 11. 16 & 18 Drum St., San Francisco, Cal.

DETROIT.—*Honey.*—No desirable honey left in the commission houses. The dark grades that are left are selling at 10@12. Extracted selling slowly at 7@8. *Beeswax* wanted at 27@28. M. H. HUNT,
June 19. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—Market cleaned up on old comb and extracted. New crop of comb beginning to arrive. We quote 1-lb. comb, white, 15; 1-lb. comb, dark, 11@12; 2-lb. comb, white, 12@13; 2-lb. comb, dark, 10@11. Extracted white, 6@7. Dark, 5.
HAMBLIN & BEARSS,
June 13. Kansas City, Mo.

COLUMBUS.—*Honey.*—Sales of honey slow at 15 c. Old honey about cleaned up. A lot of honey remains which is not salable.
June 18. EARLE CLICKENGER, Columbus, O.

BOSTON.—*Honey.*—No change in honey or beeswax. BLAKE & RIPLEY,
June 19. 57 Chatham St., Boston, Mass.

CLEVELAND.—*Honey.*—Extracted, 5½@5¾; comb honey, 11@12 *Beeswax*, 22@23 Market quiet for honey, firm for beeswax.
June 27. A. C. KENDEL, Cleveland, O.

ALBANY.—*Honey.*—There is not enough doing in honey market at present to report.
C. MCCULLOCH & CO.,
June 18. 339 Broadway, Albany, N. Y.

FOR SALE.—1890 white-clover honey, extracted, No. 1, in 65-lb. tin-cans or by the barrel.
J. B. MURRAY, Ada, O.

WANTED.—New honey, comb and extracted. State price, quality, and shape. GEO. W. HARDWICK,
228 E. Market St., Indianapolis, Ind.

Rheumatism * Bees.

No doubt the best bees for curing rheumatism are pure-bred Italians that prove to be good workers and work on red clover.

We have such if you want good stock to work with and to secure you plenty of honey.

Tested queens in May, - $1.50; in June, - $1.25
Unt'd " " " - - 1.00; 3 for - - 2.50
" " " June, - 75; 3 for - 2.00

For wholesale prices, nuclei, lbs. of bees, and all kinds of bee-supplies, write for our 16 p. circular.
9tfdb **JNO. NEBEL & SON, High Hill, Mo.**
Mention this paper.

ITALIAN QUEENS FOR SALE.

Tested, reared in August, 1889, 75 cts., clipped; untested, 65 cts.; hybrids, 25 cts.
G. L. JONES, Grand Ridge, Illinois.
☞In responding to this advertisement mention GLEANINGS.

Now Ready to Ship

Full colonies of pure Italian bees, with tested queen, in A. I. Root's Simplicity hive, only $4.00 each. Every thing first-class. Pure Poland China pigs, eligible to Ohio record, from $5 to $12 per pair. Safe delivery guaranteed. I shall do by all as I would be done by. N. A. KNAPP,
13tfdb Rochester, Lorain Co., Ohio.
☞In responding to this advertisement mention GLEANINGS.

E. R. GIBBS, Breeder and Dealer in Ferrets, Guinea Pigs, Lop-eared and Common Rabbits. Send 2-cent stamp for circular.

25 colonies of fine Italian bees and fixtures for running them for either comb or extracted honey, for sale at a bargain. Address E. R. GIBBS,
Norwalk, Huron Co., O.
☞In responding to this advertisement mention GLEANINGS.

QUEENS from imported mother; untested, 75c; tested, $1.25: three-frame nucleus, with queen, $3.00. Safe arrival guaranteed. 13-14d
THOMAS & KISSEL, Horatio, Darke Co., Ohio.

FOR SALE.—Italian queens; tested, at $1.00 each; untested, 75 cts. each. Safe arrival.
13-15-17d L. A. RESSLER, Nappanee, Ind.

CHENANGO VALLEY APIARY.

Please give me your orders, and try my fine yellow Italian queens; are from imported stock, well known to my customers. Send for circular

Two-frame nucleus, with queen, in June, $2. Tested queen, $1.50; untested, $1.00. 8tfdb
MRS. OLIVER COLE,
Sherburne, Che. Co., N.Y.
☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange Italian bees in portico L. hives for a good set of tinner's tools.
13tfdb J. A. BUCKLEW, Warsaw, Ohio.

WANTED.—To exchange a 14-inch Foundation-mill, good as new, with dipping tanks and boards, for beeswax, tin plate, metal rabbets, T tins, or offers. A. A. WEAVER, Warrensburg, Mo.
13-14d

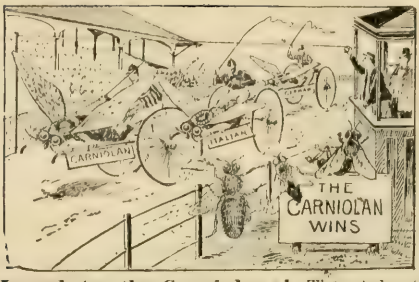
WANTED.—Ext'd honey, Chaff and S. hives, Bee supplies, honey-extractor, for World type-writer, Telegraph fodder-cutter, sulky, or offers.
W. W. KULP, Pottstown, Pa.

WANTED.—To exchange full-blood Chester-white pig for a good incubator.
MRS. R. A. WOLFCALE, Uniondale, Ind.

WANTED.—Second-hand foundation machine. Give description and price. J. F. MICHAEL,
13-14-15d German, O.

WANTED.—Correspondence with parties wanting small fruit-farm in full bearing now. Apiary, poultry yard, etc. Good yearly income. Splendid home. Speak quick; must be disposed of. No postals. F. M. SAUNDERS, Hamilton, Texas.

WANTED.—To correspond with some bee-keeper in Illinois that can make use of a handy man with 4 h. p. engine, this winter, to make bee supplies. F. P. HISH, Henton, Shelby Co., Ill.



Hurrah for the Carniolans! They take the lead; win the race; secure the prize. If you want

TONS OF HONEY,

Try the Carniolans. Hardiest to winter; pleasantest to handle; best honey-gatherers. Our stock is the best that can be procured, and is bred miles away from other races.

Prices: One untested queen, $1.00; 6 for $5.00; 12 for $9 00. One tested queen, $2.50. One imported queen, $3.50. *The Bee-Keepers' Advance* and an untested queen, for $1 25.

J. B. MASON, Mechanic Falls, Me.

☞In responding to this advertisement mention GLEANINGS.

Golden Yellow Italians ❁ ❁ ❁ ❁ ❁ ❁ ❁ *and Albino Queens*

That will give perfect satisfaction. Tested, $1.25. Select tested, $1.50. Untested, 75 cts. from now until October. I guarantee safe delivery. Sold this year 113 queens. J. W. TAYLOR,
13-15db Ozan, Hempstead Co., Ark.

In writing advertisers please mention this paper.

FOR SALE.—An apiary of 125 colonies of Italian bees, together with fixtures and honey crop, if bought soon. I will also sell my place, good house and out-buildings, and 8½ acres of land.
L. WERNER, Edwardsville, Ill.

CARNIOLAN APIARY FOR SALE!

My Carniolan apiary must be sold at once, to allow me to move to Colorado Springs.

"You have the best Carniolans in the country."
H. ALLEY.

Select imported queen, $5; untested queen, $1; untested, ½ doz., $5; tested queen, $4; 1 lb. bees, $1; 3-frame nucleus, $2 00; full colonies, in 1-story Simplicity 9-frame hive, $5; add price of queen you want. Ten per cent discount on all orders of $20 00 or over. Large stock of all ready to ship at once. Queens by mail, others on board cars here by freight or express, as ordered. Remittance of currency, bank draft, or money order must accompany all orders.

Will sell my whole apiary and implements, and give immediate possession. House and grounds also for rent.

S. W. MORRISON, M. D.,
12tfdb **Oxford, Chester Co., Pa.**

☞In responding to this advertisement mention GLEANINGS.

WE have on hand a fine lot of beautiful Italian queens which we will send by return mail at the following prices: Tested, $1.25; untested, 85c. Safe arrival guaranteed. LEININGER BROS.,
Douglas, Putnam Co., Ohio.

Queens by Return Mail.

Untested (Italians)	$1 00
Tested	1 50
Select tested	3 00
Untested honey queen	1 25
Tested honey queen	1 88
Select tested honey queen	3 75

Bees and brood at the same rates. See our catalogue, free on application.

A. I. ROOT, Medina, Ohio.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians,** the result of eleven years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Strong 3 L. frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me, I refer to A. I. Root, who has purchased of me, during past ten years, 415 queens.

J. P. MOORE, Morgan, Pendleton Co., Ky.
13tfd ☞Money-order office, Falmouth, Ky.

Please mention this paper.

PHOTOGRAPHY AND BEES.

One hand camera, 4x5 pictures, and one Scovill, 5x8, with tripod, etc., $10 each. Also a few stands of Italian bees, which have averaged 100 lbs. of honey per stand, in Root's Simplicity hives, with wired combs, $4 00 each. Send for particulars.
W. J. HUSSEY, Mt. Pleasant, Ohio.

☞In responding to this advertisement mention GLEANINGS.

BROTHER BEE - KEEPERS.

By the time this reaches you I will be up with orders, ready to fill yours by first train. No. 1 sections, $3 00 per 1000; No. 2, $2 50. Shipping-crates, Foundation, Smokers, and all bee-goods needed in the apiary. Send for price list free. Address

W. D. SOPER, Jackson, Mich.

☞In responding to this advertisement mention GLEANINGS.

Italian Honey Queens.

Tested, $1.50; untested, 90c. A limited number extra select tested, $2 00 each.

R. W. TURNER, Medina, Ohio.

In writing to advertisers please mention this paper.

MY 22D ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. *H. H. BROWN, Light Street, Col. Co., Pa.*
9tfdb Please mention this paper.

GLOBE BEE-VEIL

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POLLEN FOR BEES.

CAN BEES GET ALONG FOR ANY LENGTH OF TIME ON NITROGENOUS FOOD?

SOME years ago I discussed, in GLEANINGS, P. Schoenfeld's theory on the larval food of bees. Mr. Schoenfeld has published in the *Illustrierte Bienenzeitung* some other very interesting articles, which I am willing to reproduce *in extenso*.

DRONES.

About three years ago Schoenfeld inclosed a frame with new combs in a cage of double wire cloth, so that the bees outside of the cage could not feed those inside of it. The comb was filled with 100 gr. of sugar syrup, and then a number of drones put inside of this cage, and the whole thing was hung in a good colony of bees. At the end of the third day the drones were dead. Two other experiments on cold rainy days, when no drones were flying, had the same effect. It is well known that drones feed themselves on honey. If we cage them and give them a few drops of honey so soon as they are hungry, they eat this honey like the worker-bees. Schoenfeld then caged some drones in the same way, giving them honey instead of sugar syrup, and they died at the end of the third day. Next he removed the outer wire screen, so that the worker bees could feed them through the single wire screen, and they lived for weeks. Consequently, drones can't live longer than three days, if not fed with nitrogenous food by the workers. I will remark here, that it is a well-known fact that drones, as well as queens, feed themselves on honey, but do not eat pollen, but are fed by the worker bees with the same nitrogenous food which they give to the larvæ. These experiments prove this again, so far as drones are concerned.

These experiments indicate how the drones are killed by the worker bees in the fall or summer time. It was supposed, till recently, that the worker bees drive them from the honey at first to the bottom-board, and, when weak enough, they are carried out of the hive. But the drones are not so lazy and awkward that this could be done without great tumult. It is much easier to explain, if we know, that the drones get very weak soon after the worker-bees stop feeding them nitrogenous food.

But these experiments throw some light on another question: Why do the bees kill the drones? It was supposed that the drones are expelled as soon as the swarming fever is over, and no mating of young queens would be necessary; and because queenless colonies keep drones, sometimes, over winter, this doctrine seemed to be infallible. But not to speak of the fact that such a knowledge is far more than we can expect from the mind of an animal, we know of some *facts* against this theory. If this theory were correct, the bees would kill the drones as soon as the last swarm is cast; in many localities they do not do so. Here in Texas the bees swarm in March and April, in May and June we have our main honey-flow from horsemint; as soon as the horsemint is drying up (about July), the drones are killed; in the fall we have some other honey coming in, and other drones are raised; but I never got a swarm in the fall. It would be interesting if Mr. Poppleton would tell how the bees do in this respect in Cuba.

We can easily see that, as soon as the pollen in the field commences to get scarce, the production of the larval food is becoming more difficult by degrees. At first the drone brood is fed no more; then the drones, which die in a very short time. This is sometimes quite sudden, if in springtime a frost or in summer a hail destroys all the blossoms.

That queenless colonies keep their drones is not

against this theory. These colonies have no brood, but have pollen in abundance, so the drones are the sole consumers of all the larval food instinctively produced by the bees.

But we can learn something more by these experiments. A food necessary for drones will be just as necessary for workers. Worker-bees, it is true, are much more hardy. Without any food, drones starve in six or eight hours; but workers stand this treatment for 48 hours. Nevertheless we can see that the worker-bees, too, need some nitrogenous food to preserve their vitality; i. e., they need some pollen. Every bee examined in the first months of the winter, when no brood at all is in the hive, will show many pollen-shells in the alimentary canal. If the bees have no pollen in the cells they find some in old combs, and the experiments made with sugar syrup are no proof that the bees can live without any nitrogenous food, we will say, during the winter, because the sugar is not quite without nitrogenous matter. Some pollen in winter is not only without danger, but it is necessary. I may add to this, that the so-called "pollen theory" may be explained in another way. In some localities the bees may bring in so much pollen that a great part of the cells are full of pollen covered with some honey. Hereby the bees not only starve, but they will get too cold in winter time. The cluster of the bees is always on empty combs, and in every cell inside of the cluster is a bee, so long as the cluster is compact. If the most of these cells are filled with pollen, the cluster is too much expanded, and the bees have to eat more to keep it warm. In this way an abundance of pollen in the brood-nest may be dangerous in winter indirectly.

Some bee-keepers doubt that the bees go inside the cells inside of the winter cluster; but if we take into consideration the fact that the comb is about one inch wide, while the space between the combs is hardly half an inch, we see that, inside of the cells, is room enough for double the number of bees in the space between the combs. If these combs would be empty in the cluster, it would be hardly possible for the bees to keep up the high temperature, while outside we have some degrees below zero. The cluster would by no means be a compact one. But it is hardly necessary to talk about, if we take into consideration to what small a cluster a colony is contracted in cold weather, which colony, a short time before, covered the spaces of eight or ten frames.

Selma, Texas, April, 1890. L. STACHELHAUSEN.

On receipt of the above we forwarded the same to Prof. Cook for his opinion and experience on the matter, and he replies as follows:

Mr. Stachelhausen's article is certainly very interesting. I believe he is largely, if not wholly, correct in the matter of drones. I think the drones get their albuminous food from the workers. They, the drones, work hard functionally, and so need much of this food, and soon die without it.

I do not think the workers need as much nitrogenous food as Mr. S. thinks. They must have, it is true, albuminous food, but there is enough in the blood and tissues to last them for days, and weeks even, when they are not active. Cage bees, or let them be in the quiescent condition of winter, and they gather nothing, and feed no brood—are, in short, nearly idle. Thus they survive and do well on honey or syrup alone—just as we may be sick, and live for days, perhaps weeks, without any food other than water and air. I am very certain that our friends in Germany, or some of them, magnify the importance of this food in winter. I do not believe the queen gets any, and I doubt whether the workers do for weeks together. Of course, as soon as the queen commences to lay, then the bees eat pollen, and feed the digested food to the queen. As soon as I can get time, I shall write up my experiments, made last winter, in keeping bees without pollen. I think these experiments will sustain the position I have taken. A. J. COOK.

Agricultural College, Mich., June 11.

It seems to me that friend S. has given us some suggestions that have never before been brought forward, and some that are most undoubtedly true. It never before occurred to me, the injurious effect a large quantity of pollen might have in breaking up the compact cluster, so necessary to successful wintering. But since he mentions it, I do believe that the presence of so much pollen in the brood-nest is often detrimental in just this way.

RAISING QUEEN-CELLS WITH A CAGED QUEEN.

CAGED QUEENS OR REMOVED QUEENS—DIFFERENT BEHAVIOR.

I THINK I have seen it stated that bees with a caged queen will raise queen-cells just as readily as if the queen were removed. In *nearly* every case, before this year, I have had queen-cells started when a queen was caged, but not in such large numbers as when a queen was removed. The bees seem to think their queen, though present, is failing, and act as in the usual case of superseding an old queen. There is one marked difference in the conduct of the bees between caging and removing. When a queen is caged, all the eggs in the hive are hatched, and the brood reared; whereas, in the case of removal, the bees destroy, as a general rule, if not always, all the eggs. I think I have never seen this mentioned, and it seems strange that, at a time when one might think every egg would be cherished, they are all destroyed. I don't know what the bees do with them. I have read about bees eating eggs, but I am a little skeptical; for, if I mistake not, I have seen eggs left in a hive after a colony had starved in it. As I have said, the caging of a queen starts bees to rearing a queen or queens as in superseding. Toward the last of May, this year, I caged a number of queens on purpose to have queen-cells started. To my surprise, most of the colonies did not start a cell. I suspect it was because the bees were very short of stores, for I have been obliged to keep close watch to keep the bees from starving, the weather having been so bad that I think there was not over two days' work on fruit-bloom. June 3, with plenty of clover bloom in sight, but hardly old enough for bees to work on, many hives had not a cubic inch of honey in sight. Frames of brood, put in an upper story over an excluder, shared the same fate; in most cases not a cell was started. Probably if I had fed a little each day, the result would have been different. In making the above experiments I was surprised to find

QUEENS STOPPED FROM LAYING BY USE OF EXCLUDERS.

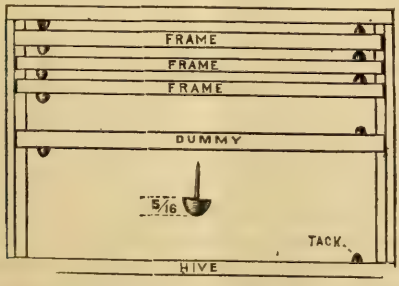
In three cases I put all the brood of a colony into an upper story, leaving the queen in the lower story with an excluder between. I expected, as they were strong colonies, that enough bees would stay above to take care of the brood, and that the queen would go right on laying in the combs below, which were in good shape for immediate use. Two days later not an egg was laid in either of the lower stories, although there appeared to be a good many bees with the queen. In two of the hives I then put a frame of brood in the lower story, and the queens went right to laying. In the third hive I made no change; and ten days after the queen had been left broodless there were only eggs below, showing that the queen had stopped laying at least a week. Not a queen-cell, however, was started above.

HOW SOON QUEENS LAY AFTER CAGING.

In caging queens during the honey harvest I found that a queen, after being caged, did not immediately commence laying after being freed. The longer she had been caged, the longer she was without laying after being freed; in some cases, I think waiting about a week before laying. But this spring, just as soon as freed, a queen commenced laying. They were, however, caged only about a week, in which case I should expect, in the honey harvest, at least a day or two to elapse before the queen laid. Why the difference? Was it the season of the year?

A SPACER SUGGESTED.

As so many are suggested, I'll tell you one I'd like to try, but, oh dear! I'm so crowded in the busy season that it isn't likely at all I can try it; but some one else may. I think it may be very old. Get a furniture nail whose head projects $\frac{5}{16}$ of an inch, or a square block of wood of the same thickness, and drive into one side of the top-bar at one end, just over the end-bar. Put one on the *opposite* side at the other end, and your spacing is complete so far as the frames are concerned. The dummy must be treated the same way (for I imagine a dummy is important with fixed distances), and on each side of the hive must be a spacer where there would be one if a frame came in place of the side.



VERTICAL VIEW OF HIVE, DUMMY, AND THREE FRAMES WITH SPACERS.

To make it more satisfactory, I think a spacer should also be put about half way down the end-bar. C. C. MILLER.

Marengo, Ill., June 4.

My dear friend M., I am surprised to hear you say that bees as a general rule destroy all the eggs after the removal of the queen. Some time ago, somebody suggested that a great part of the eggs were missing shortly after the queen was taken away, and gave as a reason that the worker bees had *eaten* the eggs in order that they might have the wherewith to produce the royal jelly. So many objected, however, that I believe our friend gave up his theory. Now, I do not know that I ever saw a case where I thought all the eggs were removed after taking out the queen. On the contrary, I have often watched the eggs to see how many days would elapse before they were all hatched into larvæ. So I feel certain it can not be a general rule, with our bees any way.—I am very glad indeed to know that you have noticed the difference between caged queens and removed queens. Yes, I have often noticed that queens are usually idle some little time after their laying has been interrupted.

JONES VS. BROWN.

THE LEGAL ASPECT OF THE CASE.

I BEG to dissent from the decision of your "court of equity" in the case of Jones vs. Brown. I look upon the decision as involving a great deal. If left as a majority of the judges have decided, it will have, it seems to me, a decidedly demoralizing tendency, and will virtually abolish the business of letting out bees on shares. It will tend to weaken confidence, vitiate contracts, and absolve responsibility.

The contract in this case is, as stated, that "Jones and Brown have been keeping bees on shares. Jones is the owner, and Brown is the apiarist. They agree to share equally in the profits and in the expenses." The result is, that, "during the following winter, three-fourths of the bees die." The question is, "Shall Brown stand half the loss?" In the absence of the statement, the inference is "that the death of the bees occurred within the time limit of the contract."

A majority of your "best authorities" on bees find for Brown—though in an indefinite and irresponsible way. Custom often becomes—or, rather, makes, law. Sometimes, however, equity is law. If this case is to be tried under the former, then it must be ascertained what custom is. If by equity under the common law, then I would reverse and remand their decision, upon the following grounds:

1. Jones furnishing the factor, capital, and Brown the factor, labor—the third and last factor, land, not entering into the firm; and agreeing, under the contract, to "share equally in the profits and expenses," they become equal partners in the business for the term specified in the contract.

2. The stipulation that they were to share equally in the profits and the expenses is a sufficient provision in the contract to cover the liability of loss in wintering.

3. Under the contract they were equal owners of the apiary for the time being; and, as equal owners, are equally interested in all usual or unusual profits, and so, also, of all unavoidable losses. If, however, the loss could have been avoided by Brown, then Brown should stand, as C. C. Miller says, "for the resulting damage; not sharing the loss, but paying *all* the loss."

Bees, standing for money—and both are capital—should have been accounted for by Brown the same as if the money had been given him. If

money, by Brown's reasonable care, had been lost, the loss should have been borne equally; but if by Brown's negligence, maliciousness, or dishonesty, he, then, of course, should be responsible for, not half, but *all* of it.

4. Jones furnished the bees, and Brown the labor; Jones's superintendence and responsibility then ceased, and was assumed by Brown; and it would have been wanton interference upon the part of Jones to concern himself further with the business. Advice, even, would have been purely voluntary.

5. Brown's skill or capacity to care for bees has nothing to do with the matter. It was not needful for Jones to know of them, under a private contract, any more than under a public bid under the hammer. All Jones needed to be interested in was Brown's ability to meet a money obligation.

6. "If the bees," says friend Wilkin, "did not make honey enough during the season to keep them over, it should be the owner's loss." Exactly; but are not both parties the owners for the time of the contract? Would it not be better to say, that, "if the bees did not make enough to keep them over, the firm should have bought sugar for Brown to feed them, and thus divide the loss only of sugar, and save the loss of the bees"?

7. Mrs. Harrison and George Grimm gave the best answers, both worth repeating. She says: "Ordinarily a share in the profits would imply a share in the losses, there being no provision to the contrary." He says: "Under the given state of facts, each must stand half the loss, even if not occasioned by the carelessness of Brown." I would amend by adding, "And if occasioned by the carelessness of Brown, then Brown should stand it all."

This matter being of much importance to the fraternity, it is seriously to be hoped the final decision may be correct.

You have done the public great service in exposing Dr. Hall. I will have your article copied in the newspapers. Thousands of dollars go to Hall from Texas every month. J. L. CALDWELL.

Mart, Texas, June 14.

Friend C., I am exceedingly obliged to you; in fact, I have been wishing for some time to have some lawyer speak out; and I am very glad, too, for your opinion in regard to the Dr. Hall matter. I only wish that some of our doctors would speak out just as freely; but some way or other the whole brotherhood are perfectly silent on this great discovery of doctoring without medicine. Is it really true, as Dr. Hall says, that they are all bitterly opposed because it would cut off their bread and butter? You know, of course, I do not believe a word of it; but what in the world is the reason that all of them keep still?

AGE OF BEES TO GO WITH QUEENS IN SHIPPING THEM, ETC.

FRIEND DOOLITTLE TELLS US HOW TO GET BEES OF THE RIGHT AGE.

A CORRESPONDENT writes, asking whether there is any difference as to age of bees which are placed in the cage with a queen for shipment, or whether an indiscriminate catching of them will answer every purpose. I have made the sending of queens by mail a study for many years, and find that there *is a difference* in regard to the bees that go with the queen. I have used bees that were all old and those that were all young, with poor results. To illustrate: A party ordered three queens. In one of the cages, all old bees were used to go with the queen. This cage was marked with a private mark. My circular states that I guarantee the safe arrival of all queens, on the condition that, when the cage arrives, the bees be carefully examined through the wire cloth; and if the queen is dead, the cage is to be returned to me with contents unmolested, when I will send another. I made it thus, partly to guard against fraud, but mainly so I could look into any failure on my part in meeting the right requirements for perfect shipment, as I could often find the clew to the failure, in the returned cage. The candy part was the main trouble in former years; but that has been fully overcome by the Good candy and its modification. From this digression by way of explanation, let us return to the three cages.

One was reported as arriving dead, and was returned, while the other two came without a dead bee. When the returned cage arrived it had the private mark on it. Again, in early spring I often have to use bees too old for the best results, where the queens are taken from the hives lately set from the cellar, unless I take bees to go with them from hives that were wintered on the summer stands, they having bees of the right age. As it is some trouble to get these bees from another hive, and as such bees sometimes have a desire to worry a strange queen, I sometimes take the bees that have wintered over from these cellared hives, and send them along; but the loss has been so great that I have resolved never to do it again. I also find that very young bees will not endure the journey any better than old bees. Sometimes in forming nuclei by setting a laying queen with the bees and frame of brood she is on, into an empty hive, as I have given in GLEANINGS, and sending the queen off two or three days afterward, a few had only young fuzzy bees left, as the older ones had returned to the old stand. Cages so sent with young bees, and marked, have gone with many dead bees, where they were not returned as altogether bad. In this way I have watched results till I have found that bees from six to fifteen days old are the ones that stand the journey best, especially if a long one, like going to Texas, California, or to Washington, were to be taken.

Having learned what bees to select, I now rarely lose more queens in going to these distant points than I do when the distance is 500 miles or less. In selecting bees, take those that have flown a day or so previously, and not those whose bodies are distended with excrement, as all young bees that have never flown are extended to a greater or lesser extent, with the pollen consumed in their larval state. To know what bees to select, I am often guided by those which thrust their heads into the cells of unsealed honey first; and, besides this, bees in this position are very easily picked off the combs, as the wings stand out from the body. The item of having queens reach their destination in good order every time is quite an important one to the queen-breeder.

THOSE LONG-IDEA HIVES.

On page 318 I see it is desired that I tell why I did not stick to the "Long-Idea" hive after obtaining so large a yield of honey from it. There were three reasons why I gave it up: The first and greatest of

which was, I could not winter bees in them. The bees died in them every winter during the three years I tried them. The second reason was, that, when taking out the combs for extracting, the back must be bent all the while or else the hive be set on stilts, and then the bees ran out all over the sides of the hive, so as to make much work in closing it, instead of going below, as they do in a two-story hive. The third reason was, that, the last season I used them, colonies worked in two-story hives gave a little more honey than did the Long-Idea hives, one giving over 400 lbs., while the Long-Idea was some 28 lbs. short. I might also add, as a fourth reason, that I found that there was more money to me in comb honey than extracted, and the Long-Idea hive was never intended for comb honey. G. M. DOOLITTLE.

Borodino, N. Y., June 14.

Since you suggest it, friend D., it occurs to me that my custom in getting bees to go with the queen was always to take those with their heads in the cells, sucking up honey. One reason for so doing was that I might get bees having honey in their sacs, to feed the queens.—Thanks for your answer in regard to the Long-Idea hive. Your third reason is rather a stunner. But I do remember that a great many at one time reported enormous crops of honey from those Long-Idea hives.

OSBORN IN CUBA.

PROPRIETOR OF OVER 500 COLONIES.

Friend Root:—Our drouth is at an end. For six and one-half months we had no rain, three little showers being all. Is this common for Cuba? They say it is not. In 1840, so the records show, they had a drier year than this has been. For eight months it did not rain; and you can set it down for a fact, that I hope we shall not have another drouth in fifty years to come. How did our bees live through the last six and one-half months, when there was not a flower or a green blade of grass—nothing but dust, dust, and dry leaves that you could see, as far as the eye could reach? Now, did I not tell you that I had unbounded faith in Cuba and its honey resources? Well, the last six and one-half months has been a test of that assertion. But, *how* did they live, from our apiary in the east and south and west too? From two to six miles away (as the crow would fly), there are small lakes and creeks and large bodies of wet land covered with all sorts of timber and vegetation common to a tropical country. These regions furnish an immense amount of bee-pasturage that is not materially affected by dry weather. To such places our bees went for their rations, when there was not a single flower near home. Now, such a season as this has been is what I call a practical test of the *honey* resources of Cuba. You know that assertions amount to but very little, and misdirected efforts do not prove to be false what I have stated before; i. e., that at this day in Cuba it is practically impossible to overstock a range. The time may come when the conditions will be so different from what they are now that overstocking will be possible, but it is not now.

I wish to correct one statement you or Ernest made when you said "Osburn had charge of seven or eight hundred colonies." That was a mistake. I never was in charge of so many colonies for any one. The most I ever had was in the fall of 1885. I had charge of 586 colonies for the Casanova brothers; and now that I am running my own business I have 526 colonies, and I think that, next spring, I shall increase them to 600, all in one apiary. I know that to many, yes, to very many readers of GLEANINGS, 600 colonies seems too many for one apiary; but if they will stop a moment to consider the cost of starting even a small apiary here, they will make up their minds that more honey can be secured from 600 than from 250, and one outfit will answer for the whole; and during the bellflower season, I tell you 1000 colonies in an apiary can not gather the honey. But in summer the poorest of them would have to be helped.

QUEEN-REARING.

We are requeening our apiary now; and while upon this subject, I must say a few words upon the subject; i. e., *young queens vs. old queens.* I know friend Doolittle has just written an article condemning the practice of superseding queens two years old; but for this country such a practice (that is, letting the queens live as long as they seem to be doing well) would ruin any man that followed it, for more reasons than one. Chief among them is, our honey-flow comes at an unseasonable time of the year—at a time when the bees prefer to be at rest. Now, then, if you have not young and vigorous queens that will lay and keep the hives full of bees at a time of the year when an old queen would lay hardly enough to furnish bees to take care of the combs, any one can see at a glance that such bee-keeping would not pay for Cuba. Then, again, an old queen begins to fail in more ways than in the decrease of eggs she lays. The bees that hatch from eggs of the old queen are lacking in vitality. You may go into her brood-chamber, and you find it quite well filled with brood; but her bees die young; they do not live to do much work; they lack vitality; they lack longevity, ambition, and push to go after the honey. Most of the above are the characteristics of the progeny of the old queen. Does the rearing of queens have any thing to do with it, for better or for worse? Yes, much, very much; and now I want to say again that I have yet to see or hear of a better mode of rearing queens than by the horizontal-bar process, when all conditions are favorable. This principle I found in GLEANINGS, I think, in 1877. I can not remember the one who first used it. But I have used it for thirteen years, and have never seen a good reason to abandon it. No, not any queens over two years old for us here; but in California I have had them live to be five years old, and do good business up to four years, but not here, for they lay so continuously that they exhaust their fertility long before they are four years old.

Now, friend Root, if you have any objections to raising queen-cells on horizontal bars, tell me what they are and I will see whether I can meet your objections with reasons backed up with a long and successful experience. I shall say, "No, I do not want

CLOSED ENDS AND WIDE TOP-BARS."

If, with the narrow end and top bars, brace-combs must come, why, then so be it; but deliver me from a frame that you have to have a beetle and wedge to get it loose when you want to.

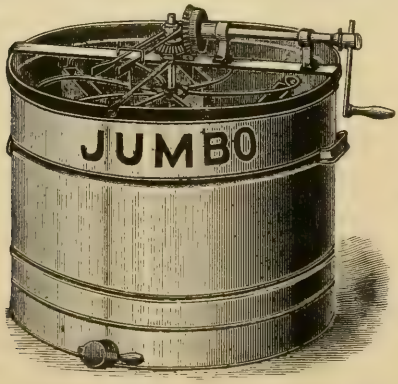
THE OLD SIMPLICITY VERSUS THE FLAT COVER.

You say you do not see how we keep the bees

from building up on top the combs, with the old Simplicity cover (unless we have a cloth over the frames). Well, we do have a cloth, and the best cloth I ever saw, made of old sail cloth that we buy in Havana at a reduced figure, and I have yet to see any thing that equals it for a bee-cover. But with all that, they will eat holes through and go up and build comb, and fill with honey; and when they get it nicely full we take it off and put it on to some young colony that is building up, and have not sufficient workers to gather plenty; and, don't you think that young colony will go ahead with that much honey stored in the garret? I think it will. That is not all. During the summer the colonies get very strong, and long in the afternoon you will find the cover packed full of bees that seem to be up there taking a nap. Just before dark, go and quietly take the cover, bees and all, and place it on some young colony where the queen has just commenced to lay. During the night they will work down among the combs, and it may surprise one who has never tried it, to see how many of those bees will stay where you put them, and work right along as though they had swarmed naturally. But I am not done yet. If they do not wish to stop to eat holes through the cloth, they just get their shoulders under that cloth, and they raise it up and build under it on top the frames; then what? do we cut it off? No, not yet, but put it into the extractor and throw it out, and sometimes we wish the comb were still higher, as it would hold more honey. We let them go that way until the last time extracting (then we are not in so very much of a hurry), and we clean them all off, and have a fine lot of wax. Now, suppose we stopped to clean those frames every time we extract; it would be a losing game, besides the time it took to do it. The first hard work the bees did would be to put it back again; therefore a double loss. Can you now see why I like the old Simplicity cover?

EXTRACTORS, AND GEARING UP.

You do not see why I want the baskets to make five revolutions to the crank one. Now listen and see whether I am correct or not. You take a two-frame extractor with an 18 or 20 inch can, and you



A HONEY-EXTRACTOR FOR USE IN CUBA.

can throw out honey quite well (even without any gear); then you take a can that is 3 feet or over across, and try it without its being geared, and see what the result will be. I think that, by the time you have extracted a few tons, you will think you would rather have it geared, and geared high too. You know that, as you go from the center you decrease the centrifugal force; so it naturally follows that, to produce the desired results, you must make up in rotary speed what you have lost in centrifugal force by increasing the distance from the center-shaft. These are facts, as you can easily demonstrate by a trial. With this Stanley we have here, it has a graduated crank (that is, you can make it short or you can lengthen it to make the purchase greater), so if the baskets make five revolutions, more power will be necessary; but with the increased length of crank, one can be made to balance the other, and it really will be much easier than the slow motion; for you know that, with increased leverage, you can overcome what has been added, by an increase in motion, and not make your hand go around so fast either.

In relation to your visiting Cuba, do come; come and spend a winter in the finest climate, from October till May, you ever saw. The showers—well, during the summer months, it is not uncommon for it to rain every day or half a dozen times—just those showers you speak of; but in the winter, no. In the months of November, December, January, February, and March, and many times April, it is not common to have much rain—a shower, perhaps every week or so; but the winter is called the dry season; but this last winter, of course, has been the *great* exception. That the climate is fine here in the winter, there can be no question.

A. W. OSBURN.

Punta Brava de Guatao, Cuba, W. I., June 3.

We are very glad to learn, friend O., that you not only manage, but that you are the *proprietor* of 500 colonies. What you say in reference to your locality, and its capacity to support 400 or 500 colonies, is no doubt true. What we might call great overstocking in the Northern States might with you be considered understocking. There is a great deal of nonsensical twaddle about "locality" affecting conclusions, drawn by different apiarists; but when it comes to the matter of overstocking, locality certainly does make a very great difference. Some places may not support more than 50 colonies; still others 200, and even 500.—In regard to closed-end frames, do not get the impression that *exact* spacing is absolutely necessary for the prevention of burr-combs. All that any one can claim for it is that it *assists* toward that end.—Now in regard to Simplicity and flat covers. The very reason why *you* like the Simplicity covers makes them very objectionable to 99 out of every 100 bee-keepers in the United States. They do not want combs built up in this extra space; they want it built in sections or extracting-supers. Flat covers prevent any thing of this kind, and render it impossible for the combs to be built anywhere in places not designed for it by the bee-keeper.—A short time ago Edward R. Newcomb, the one who built your extractor, asked if we would like to see a photograph of it before he sent it. We requested him to send on a picture; and we now have the pleasure of presenting a view of it to our readers. We are not quite sure that your logic of decrease in centrifugal force is correct. At the *same speed* of revolution, the longer the radius the greater the centrifugal force. The graduated crank on the new Stanley, and the brake to stop the motion, is no doubt an

improvement. We shall be glad to hear from you further concerning it. Yes, we should be very glad to make you a call at some time. Possibly we may get around to do so.

WHICH IS THE CHEAPEST WAY TO RIPEN GREEN HONEY?

APHIDES, SWARMING, ETC.

On page 413 Mr. Robbins tells of getting about "the thickest, richest honey" he had by putting very thin and rank honey, just extracted from unsealed combs, in lard-cans, and stone jars covered with cloth, and setting where the "sun would pour in on it through a window," and leaving it there to cook. How long he left it cooking, he does not say. Doolittle says in the appendix to the A B C (48), that 90° is the requisite temperature, and three weeks the necessary time in which to thoroughly ripen honey. Now, the point I am aiming at is this: If one has no honey-house, and possibly no convenient room at the time in which to set his open cans, why will not the sun do this work for him outdoors, just as well as in a dark room, as Doolittle advises, or through the window, as above recommended? Does the sunshine ever become *too* hot, so that the color or flavor would be injured, or is it because moving back and forth would be too troublesome, that this method has never been mentioned in the journals? Situated as I am, it would be my cheapest plan to ripen honey, unless our temperature in this latitude indoors in summer is sufficiently high to ripen it *any way*, say placed in any closed room or out-house. At this writing we have a hot dry spell, with the mercury at 88° in the shade, with free-air circulation. In a shut-up room, where the sun falls upon the roof and walls, it is fully 95°. So far I have had success. My honey is always thick and fine by fall, and it is ripened both these ways; that is to say, when the sun shines I usually set the cans (five and ten gallon tin cans), where the sun will pour on them all day in the yard, keeping them in a closed room at night and during bad weather.

This spring our April and May flow was ruined by the March freeze, and honey has been coming in only about enough to enable brood-rearing to go on. Wishing to take some off two weeks since, I extracted five gallons of this unsealed honey that would "spill out" when combs were inverted. Some of it was put into Mason quart jars, with cloth tied on; the rest in a five-gallon tin can. That in the Mason jars is now thick and rich, while the larger quantity in the larger vessel is thickening much more slowly. A solar outdoor heat, considerably above a hundred degrees, fell on it two weeks. Would the same result have occurred if it had been kept indoors in the dark at 90° or 88°? Will not our average temperature in this latitude in summer ripen honey any way, if kept in open cans in a closed room?

Losing our spring crop entirely, it looked as if no surplus would come till fall; but the late drouth has brought honey-dew. Black-jack oaks are covered with it, and bees are storing a light-colored honey of good body, which they seal at once. They are just "roaring" all day, and hives grow heavier daily. This honey, some 75 lbs. of which I have just taken, seems to need no artificial ripening, that not sealed not shaking out when the comb is jarred. It evidently comes from aphides; is rather tasteless, but of better color and body than such honey is described as having. Though they have given no surplus during the spring season, I never knew bees to multiply so rapidly. Swarming has been rampant all of May, and continues yet to some extent. In this connection I find that no number of crates of sections will stop swarming. "More room" of this kind will not answer. Invariably, also, "doubling up" and putting to-day's swarm where yesterday's came from, only delays matters long enough to enable cells to be gotten under way. Upper stories of empty combs or foundation will check and often stop swarming, with me. During this phenomenal year every thing has "gone by contraries," and the busybodies have caught the infection; they have clustered higher, swarmed oftener, made less honey, and "played more pranks" than I ever knew they were capable of.

Pontotoc, Miss., June 5. C. P. Coffin.

Friend C., your plan of ripening thin honey I think is a rational one—letting the sun do it. The problem has been to exclude dust and rain, and at the same time get all the heat possible from the sun. I feel pretty certain that some ventilation through this, under the hotter part of the roof, would also hasten the ripening.

DO THE BEES MAKE HONEY, OR DO THEY ONLY GATHER IT?

IN OTHER WORDS, DO THEY ADD TO, TAKE FROM, OR CHANGE OVER NECTAR AS THEY GET IT FROM THE FLOWERS?

Dear Sir:—Is there any chemical change made in "sweet" from the time it is gathered by the bee until deposited in the *cell?*

A minister here claims that there is a change made by the bee; but as each kind of flower produces its peculiar kind of honey, when gathered by the bees, it seems strange to me that the bee in her "chemical manipulations" should *countenance* any such difference. D. A. Rothrock.

Brighton, Ill., June 17.

Friend R., I think we may safely say that there is practically no difference or no change. There are some scientists and professors who insist that the bees do change the nectar in carrying it from the flowers to the hives, enough so it can be detected by the chemist. In order to get unfinished sections filled up at the end of the season we have fed to the bees different kinds of honey; but after being sealed up in the comb, it was exactly the same honey to all appearances. By accident we scorched one lot a little, and hoped that the bees in their manipulation might remove the slightly burnt taste. They did not, however, change it a particle.—Again, we once had a lot of honey that candied so readily we could scarcely keep it in liquid form at all. We melted it, added some water, and fed it to the bees. They evaporated out the water added, placed it in their combs and sealed it up, but it candied after being sealed up in the combs just as it did before we fed it to them, and I have never been able to detect that they improved poor honey in any way, neither have I been able to detect that any injury was done; or, in fact, that any change perceptible to any of our senses was wrought by any of their manipulations.

J. F. McINTYRE.

ONE OF CALIFORNIA'S BEE-KEEPERS.

CALIFORNIA, that wonderful State bordering on the Pacific coast, where fortunes are made and unmade in a day, as it were, is not only one of the most favored sections in the world for fruit-growing, but it is hardly less remarkable as a great bee-country. Instead of furnishing localities that will support only 75 or 100 colonies, as many as 500 are kept in a single location. Bee-keeping in California, like that on the island of Cuba, is carried on on an immense scale; and we hope in our future issues to give more importance to this land of the setting sun. There are many extensive and distinguished bee-keepers in California. Some of the most successful ones are those who will not write for the public. There are others who are no less successful, but are able and willing to impart their knowledge to the bee-keeping world. Among this number is J. F. McIntyre, of Fillmore, Cal., who is not only an extensive bee-keeper himself, but has been associated with one of the oldest and best bee-keepers, Mr. R. Wilkin, for several years. For the present we take pleasure in introducing to you—

J. F. M'INTYRE.

Our friend was born Nov. 1, 1857, in Ontario, Can., eight miles from Brantford, where the last International Bee-keepers' Convention was held. Like many other sterling sons of toil he was raised on a farm, going to school in winter and helping to do the farmwork in summer. He was the oldest son in a family of three sons and three daughters. He was of an investigating turn of mind, and liked gardening; but farming he detested. His father did not keep bees, but his neighbors did. Interested and charmed by what he saw of them, at the age of fifteen, with a capital of $12.00, he made a start, $7.00 of which he invested in a colony of bees. Later he saw advertised the bee-books of Quinby and Langstroth. The former he purchased, because that explained the *mysteries*, and very soon he constructed a movable-comb hive — the first one he ever saw. He afterward came in possession of Cook's Manual and the A B C, and subscribed for GLEANINGS and the *American Bee Journal*. He then bought a honey-extractor. With this he took, on an average, 150 lbs. of honey per colony from his apiary. As has happened to many other growing and successful bee-keepers, it set the neighbors wild. They all wanted to embark in the business. So many, in fact, went into it that it ruined his location.

Some articles which he saw in GLEANINGS and in the *American Bee Journal*, particularly some from E. Gallup, caused him to make up his mind that California was the place for a man who desired to make the culture of bees a *specialty;* and on the 7th of December, 1881, he bade good-by to his relatives and friends, and started for the land of gold and honey, but not, he says, without some regret on his part as he looked back and saw his mother standing in the door, with her handkerchief to her eyes. He reached Los Angeles, and was just in time to attend a session of a bee-keepers' convention there. Here he met a large number of old pioneer bee-keepers, who, he says, running over with hospitality, made him an honorary member of the association. He had been informed that Mr. Gallup wished to sell an apiary of 70 colonies in Ventura, Cal. This, with another apiary of 40 colonies, he purchased. He built a small house on government land, and for two seasons he kept "bachelor's hall." The first season, he says, was not a very good one, but he made nearly $800. In the meantime he formed the acquaintance of R. Wilkin, who, the next year, desired him to work for him for two months. Now, Mr. Wilkin had a daughter, Miss Hattie, who, naturally enough, was a bee-keeper herself. It is not necessary to tell the rest: enough to say, that, following in the wake of many another bee-keeper, he found a helpmeet among the bees. In 1886, Mr. McIntyre, and his wife to help, took 42,000 lbs. from 240 colonies, the proceeds of which were sold for $2000 cash. Two years later Mr. Wilkin sold 200 colonies in Sespe Apiary to Mr. L. E. Mercer, and moved the rest to his home apiary in Ventura, leaving his old location to his son-in-law. He bought up bees in the vicinity, and made it his home apiary. He had 150 colonies on the government claim, three miles distant, for an out-apiary, which was run during the seasons of 1888 and '9 by one of Mr. Heddon's apprentices, Mr. R. A. Holley, who has since bought it. Mr. McIntyre has now 500 colonies on the old Wilkin place, on Sespe Creek. He says it is all his location will stand. It seems remarkable that any location in the United States can stand that much. From this we get some

idea of the vast nectar resources of some of the California locations. Mr. McIntyre does all the work with the bees himself, with the exception of a man in the honey-house, to extract. Mrs. McIntyre does not now find time to work in the apiary, her time being taken up with the three little girls—Cora, Myrtle, and Lillie.

Mr. McIntyre has the honor of being the first-appointed legal foul-brood inspector in the county. In October, 1884, invested with proper authority, he cleared the county of about 300 diseased colonies. Two whole apiaries were found rotten with the disease. Both of these apiaries were burned. The county is now said to be almost free from the disease.

Mr. McIntyre does not devote his time wholly to bees, as he has a taste for raising things, such as oranges, etc. He has now 200 yards of seed-beds engaged for next spring's delivery, at $2.50 per square yard.

E. R.

In the A B C book will be found a picture of friend McIntyre's home, the Sespe Apiary. The title of the picture is "Wilkin's Hexagonal Apiary." Since the picture was made, however, things have changed very materially about the Sespe Apiary. After my visit there in December, 1888, I gave a description. Friend M. has changed somewhat the order of the hives, preferring to have a passageway for a cart or wheelbarrow through the apiary, and at the same time leave another passageway for the bees to take their flight, the entrances to the hives being all turned into this lane, or avenue. As this matter has recently been up, we shall not need to go over it here. The artist has not done justice to the mountains in the background. What artist ever did, in fact? Even a photograph seems but a poor picture of the reality. During my brief visit at the Sespe Apiary, I remember many things that were wonderful to my untutored eyes. In front of the apiary, not shown in the picture, is the bed of a mountain torrent, and almost right before the house is a big rock that came down the river-bed one night by a freshet. This rock is pretty nearly as large as a meeting-house. It was on the mountains opposite, where I saw some little black pigs grazing. Upon looking closer, however, I discovered that the "little black pigs" had horns like cows; and then I was told that they were cows. Just back of the apiary the ground was so steep that it made me blow and puff to climb up where an irrigating canal was cut into the side of the mountain. As I stopped to take breath, not only tired but dizzy from looking down at such a height, I was startled to find one of the little girls (Myrtle I think it was) right at my heels, chatting with perfect unconcern. She had not only climbed fully as fast as we did, but she lugged a good-sized "dollie" besides. I uttered an exclamation of alarm, and was going to catch her before she tumbled down the mountain. Her father remarked, however, that there was no danger whatever—she was a child of the mountains, and trod with safety and unconcern where I almost shook with fear. And then the beautiful, sparkling, and bubbling water, rushing fast over its white bed of pebbles and crumbled granite! Some people might tire of seeing these irrigating canals, but I think I never should. May God's blessing rest upon you and your wife and little ones, friend M., in your far-away home amid the hills.

THE HONEY PROSPECT.

PROF. COOK TELLS US THE HONEY IS SLOW IN COMING IN.

Mr. Editor:—The honey outlook for 1890 is not very encouraging at the present time. The bees worked very lively on soft maple, and got quite an amount of honey, considering the strength of the colonies at that time. During hard-maple and fruit bloom the weather was so wet and cold that the honey product from this source was very light—just enough to cross-fertilize the blossoms, but not enough to essentially affect the bees. Right here I saw a nice demonstration of the value of bees. I know some cherry-trees that blossomed early, and before the bees could get out at all. The weather was cold and wet; the blossoms had withered, and the pollen and nectar were gone. Those cherry-trees have set almost no fruit, while neighboring trees and other kinds that blossomed a little later are bearing a fair crop. Few horticulturists realize how much they owe to the services of the bees.

The locusts have been in full bloom for over two weeks, and also the clovers and raspberries; yet, because of some peculiarity of weather, the nectar is almost wanting. Except for feeding, I think we should have lost heavily. Even now, though the bees seem to visit the clover and raspberries, they seem to be storing very little. There is something in this matter of nectar secretion that is quite puzzling. One would suppose that warm damp weather, just such as we have been having, would surely give an abundant harvest, but the truth is, the flowers seem stingy and selfish, affording just enough to attract the bees, that the flowers may be all right, but not enough to substantially benefit the poor laborers. We see that doling out in meager sums for service is not confined to human capitalists. I have taken my class to the apiary for years at this season, and this is the first time that I have had to delay, as the bees in enforced idleness are too cross to make it desirable to work with them when my class are all inexperienced.

GOLDSMITH BEETLE.

Mr. B. S. Brumley, of East Dayton, Mich., asks about a beautiful large beetle that he sends. It is known as the "goldsmith beetle," *Cotalpa lanigera*. In size, form, and habits, it is very much like the May beetle, or June beetle, often called May or June *bug*. This, however, is much handsomer. It is golden yellow, and often shines like gold. It is not often very common in Michigan; but this year seems an exception. About the 20th of May I was in a field prepared for corn near Howell, Michigan, where the soil seemed full of these grubs. I could have collected thousands in a few minutes. These beetles come forth in May or June, and, after pairing, lay their eggs on grass or other growing vegetation. The grubs are white, and feed on roots just as the "white grub"—larva of the May beetle—does. It feeds for three years, I supposed, as

does the white grub; but those I got at Howell must have been either four or else but two years in developing; for three years ago there was no crop on the field at egg-laying time, only young corn. The remedy for these as for the white grub would be to turn in hogs. They would eat the grubs, and thus convert the grass indirectly into pork.

SPRUCE-TREE PLANT LICE.

I have received some spruce twigs sent by J. H. Hill, Venice, Fla. The dried-up, broken aphides, are beyond identification. I presume they are the common spruce-plant lice, *Lachnus abietis*. This louse works on spruce-trees all over the United States, and here at the college it often secretes much and quite delicious nectar. It is closely related to the larch-plant louse, *Lachnu laricis*, which has not infrequently given us not a little most excellent honey. I have been able often to sample this latter right from the larch leaves, so abundant was it, and I can pronounce it A No. 1. I think it would sell equal to clover. Last season we got quite a little of the nectar from the spruce, and it was fine. In most cases, I think, honey-dew from aphides is fine, and excellent for honey. I wish we could say as much of that from bark-lice—*Coccidæ*—but we can not. That is always rank, dark, and unwholesome. It is good to sell for manufacturing purposes only. A. J. COOK.

Agricultural College, Mich., June 19.

Why, friend C., do you mean to say that the white grub that bothers our crops and feeds on the roots of grass really lives three years? In plowing up clover sod around the windmill, there were such numbers of these white grubs that it called forth exclamations from the workmen. The neighbors' hens discovered what was going on, however, and they have been following the plows and cultivators ever since the ground was worked. There seem to be plenty of them left yet; but if they are going to live three years or longer, I do not know but I shall get discouraged before we get through; but may be the chickens will not, even if I do. By the way, I have mentioned one of the good things in regard to neighbors' chickens. Now, don't any of you ever say again that there is not a redeeming point to every drawback.

THE HOFFMAN FRAME DISCUSSED.

ITS DISADVANTAGES SET FORTH.

Mr. Root:—You ask for the pros and cons on the Hoffman frame. You are, I see, getting the "pros" without the "cons." Is not that the trouble with our writers on bee-lore? They give the good, and, to a large extent, leave out the bad. Now, Mr. Editor, I do not wish to be hard with the advocates of the Hoffman, or self-spacing frame; but not a single one so far gives both the good and the bad. I hope to be able to do both, and let you and your many readers judge for yourselves. I had about 1000 of what we call here the Georgia frames. The only difference in the Hoffman and Georgia is that the former frame has both top and end bar to close, while the latter has only a wide-end top bar.

Just here is an appropriate place to start my list of objections. In closing up, we kill more or less bees; the projecting ends are clumsy to handle—must be pried apart with a knife; will snap, and get the smart hybrids afoul of you in short order, in the way of taking cappings off the combs; will cause combs to pull out of frames while being raised from the board; they also will cause the combs to break out while being extracted, especially if it is necessary to turn a little fast; they will hang on the wire in putting in and taking out of extractor for any thing like fast manipulation; must be used in a wide hive, which will of necessity cost more, not to say any thing about the extra dummies and division-boards which are to be put away when not in use; then the frames will cost 50 cts. per 100 more than the Simplicity frame. In a word, I would say a bee-keeper who values his time must see the great difference in handling and storing away his frames. An 8-frame Simplicity body will hold 13 Simplicity frames, while 8 Hoffman frames will fill it; hence you see the difference in storage room, especially for surplus combs.

Now for the good: For shipping, the Hoffman frames are good; also for handling of full hives about the yard. They insure straight combs for the novice. One or two more minor good things, and you are done. Our bees to date are poor—not more than 5 per cent have cast swarms as yet. The May bloom was very bitter; but cool nights, followed by windy days, have been disastrous to the honey interests. I believe there has hardly been a day since the 1st of April when we have not had more or less wind. It is high at this moment. We like your Home department, also your Tobacco Column.

Pineville, N. C., June 5. A. L. BEACH.

Friend B., we want the cons as well as the pros. We are glad you have stated the objections as thoroughly as you have; but it seems there are a good many in the Mohawk Valley, who like the Hoffman frame. Read the following testimonies:

HOW TO HANDLE IT.

Why rack our brains trying to invent something new, when we have something already in use much better adapted to the purpose than a new invention whose chief merit is newness and novelty? How many surplus arrangements, for instance, have we? and how much better is one than another in the same locality when we come to final results? My experience is about the same number of pounds of honey from each pattern in use, under the same conditions. The advantages of one over another may be counteracted by some point of its competitor. While such a long list of implements looks well in a price list, is it of any advantage to the manufacturer or consumer? I think if we would try harder to reduce the number of our appliances, and learn to use the best now in use to the best advantage, we might do something toward correcting what seems to me a growing folly.

Friend Beebee has covered the ground pretty well in his description of the merits of the Hoffman frame, and I can fully indorse all he says about it, and would like to call your attention again to one or two of these points, which I fear you overlook in your proposed modification of the frame you offer. I would say that I have tried this form, and have seen it in use, besides my short trial. You advise using tin rabbets. I have used tin and wood side by side, and decidedly prefer the plain wood rabbets with the Hoffman frame. This modification of yours admits the bees to the rabbet, and they will deposit enough propolis between the ends of

the top-bars, after being in use a short time, to seriously impair the convenience of the manipulations of the frame, which are the principal

ADVANTAGES IN USING IT.

It is not, on first opening, as perfectly movable as your metal-cornered frame; but after you have started the first frame, and drawn it from the hive, you can easily separate the remaining frames in any place (one of your five-cent screwdrivers makes a handy tool for this purpose), and shove any number of frames to the side of the hive without crushing a bee, and handle any frame you wish, without disturbing the remaining frames; and when you slide this last frame back to its place in the hive, you push the bees out of the way by sliding it down against its neighbor. It works a little more convenient to save, say, ¼ inch space on one side of the frames, which you can close with a small piece of wood at the corners if you wish; but I consider this last of small account, as I use the frame in hives with no space at all beside the frame.

I first saw this frame extensively used in the apiary of J. H. Nellis, of Canajoharie, N. Y.; and the writer, accompanied by the proprietor and his assistants, Mr. T. O. Peet, inventor of the Peet cage, and Mr. Silas M. Locke, examined a few hives of fine Italian bees containing imported queens. My companions expressed their satisfaction freely regarding the Peet cage and the Hoffman frame. This was several years before the Peet cage acquired a world-wide reputation. I have never forgotten the pleasure afforded me by this brief visit, and time has not effaced the impressions then received. I think that some of the above-mentioned gentlemen might, if they chose, furnish us with something worth hearing—perhaps something new on the subject. ADIN STONE.

Vienna, N. Y., June 2, 1890.

Yes, friend S., we often try to rack our brains to invent something new, when there is something already in use which accomplishes the desired end a great deal better. Nowadays it is very difficult to invent something in apiculture which has not previously been thought out, described, and illustrated by some one years ago.

THE INVENTOR OF IT A SUCCESSFUL BEE-KEEPER.

Much has been said lately in reference to frames and brace-combs. I think every practical bee-keeper can tell you that more or less brood-combs will be built, no matter what frame you adopt or how small you contract the space between the top of the frame and the honey-board or surplus boxes. However, we know there is a great difference in this, in the use of different styles of frames. I remember the old American frame, or King frame, that had almost a closed top-bar, there being only a few openings made, by cutting away a part immediately over the brood-nest, to allow the bees to go up into the boxes. There were never any brace-combs built. Mr. Hoffman, the inventor of the Hoffman frame, is one of the most successful bee-keepers in this country, and his practical working led him by necessity (necessity is the mother of invention) to construct a frame that was a perfect separator, and one that could be handled rapidly. I was glad to see the illustration of this frame in May GLEANINGS, and the testimony of friends Bee-bee and Stone in regard to it; and I want to add my testimony to theirs, and I think we could muster a host of bee-keepers in the Mohawk Valley who have used this frame, and are now using it, and could not be induced to use any other. There is friend J. H. Nellis, who used to stand at the head of the fraternity as a practical bee-keeper. He has used the H. frame for years, and says there are none like it. Of course, its cost is against it; but the large bee-keeper will tell you it pays in the end, simply by the economy of labor, and that is a big item in these days of hustling and rapidity of business.

Another point we might consider against it: If there is any thing in the reversible idea, this frame, as constructed at present, can not be reversed, and this reminds me that I should like to hear the views of a man like Julius Hoffman on this subject of reversing frames. If there is any thing in it, he has found it out, you may depend; and no doubt his ingenious brain has adjusted his frame to be reversed. I have an idea myself how it might be done, but I won't give it out till I have demonstrated it successfully. THEO. O. PEET.

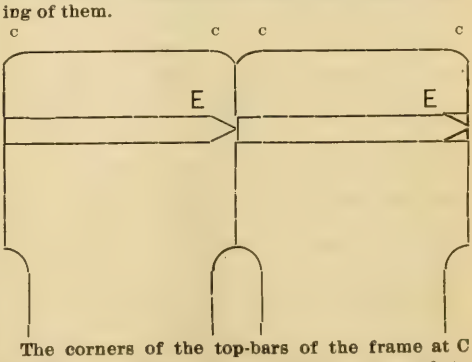
Arlington, N. J., May 31, 1890.

Yes, friend P., we are very glad that we have the testimony of Julius Hoffman himself. He writes as follows:

WHAT THE INVENTOR SAYS OF IT.

In reading Nos. 9, 10, and 11 of GLEANINGS I find that, in discussing "spaced frames," the frames I invented and used for about sixteen years have been brought to notice by some of our bee-keeping friends. But as the description and illustrations of the frame as I have them lack some important points I will make a few remarks about them.

One of the edges of the uprights, or ends of the frame, as far as they are close fitting, should be beveled off to a little less than ⅛ inch, so as to meet the center of the square edge of the next frame, as in E, of the diagram. This will prevent the gluing and sticking together of the frames, also squeezing of the bees to a large extent, and allow faster working of them.



The corners of the top-bars of the frame at C should not be taken off more than just enough to allow for turning the frames easily in the rabbets, otherwise the bees will have too much of a chance to fill up the rabbets with propolis. For the same reason, I object to your modifications of the top-bars as the jutting points of them, as called by Ernest, are very important, in order to fill out the rabbets to keep them free from bee-glue. To use these frames on tin rabbets, as proposed by Ernest, would, according to my experience, be a very doubtful improvement. The frames would slide too easily on the rabbets; and carrying and moving the hives would soon convince him of it. The way I use them on wooden rabbets, the frames are just

glued fast enough to allow the moving of the hives without any preparatory fastening, unless the hives are only partly filled with frames. In this case I take a piece of burlap, or any cloth that I use for covering up the frames; roll it into a bunch, and stuff it behind the spacing-board.

The close-fitting part of the side-bars should extend at least 3 inches down from the top-bar. As a well-made frame lasts a good many years, their extra expense amounts to but very little, if they have any advantages over others.

JULIUS HOFFMAN.

Canajoharie, N. Y., June 15, 1890.

The points you make are well taken; but it does seem to us that the frame as you make it would be too expensive for the average bee-keeper to use. E, E, if we understand it correctly, are cross-sections of the end-bars, looking straight down. Beveling the end-bars would be rather expensive, and the rounding of the points, C, C, C, etc., would be another item of expense; and yet it is true, that a well-made frame will last a good many years; and the extra expense, of course, would be but little on each year of use, providing additional ease of manipulation is secured. E. R.

WOODMAN, SPARE THE TREE.

SOMETHING ABOUT EMBELLISHING CHEAP SECTIONS.

"Is there any thing whereof it may be said, See, this is new? it hath been already of old time, which was before us."—ECCLES. 1: 10.

Bro. Root (please allow me the use of this salutatory phrase, as we are both children of the one Father, God). I have noticed a great deal of uneasiness expressed by writers for the bee-journals in regard to the great consumption of basswood for sections, etc., and the consequent decrease in honey from that source; but I was not so strongly impressed, nor did I realize any imminent danger from that source until brought to the realization of the fact by your statement that you alone had ordered two carloads of sections of Mr. Lewis. Now, add this to the great amount your and all other more or less extensive manufactories must turn out, and one can easily imagine the wholesale slaughter that is going on in the linden forests. We must also consider the alleged hair (?) mattress we find in hotels. At the present rate of destruction that has been inaugurated against the old linden, it will be only a question of time when a "chunk" of nice delicious linden honey in a beautiful basswood section will be "a thing of the past."

THE REMEDY.

Some have recommended planting basswood forests, which is wholesome advice when we are considering the welfare of coming generations, "because I shall leave it to a man that shall come after me;" but the remedy that should be sought should be one that would be beneficial to the present as well as future generations. I am now going to offer a solution to the problem; and if it is impracticable, or "has been up before," please consign this to the waste-basket right quick; but on the contrary, if it is likely to become a thing of beauty, and, consequently, a joy for ever, then the fraternity are as welcome to it as the flow of honey that God gives them from year to year. You see, people would scarcely tolerate a section made of dark wood, such as elm or even pine; but my idea is to make them out of even such, then beautify or embellish by having labels, either of white paper printed plain or lithographed with several colors, and cut with the proper insets the same as an unfolded one-piece section, being printed on all sides with appropriate address, kind of honey, and any explanation deemed necessary for the improvement of the honey-trade. Now, when your sections are taken off and relieved of the accumulations of propolis, this gummed label could be wrapped around your dark wood, covering up all defects, making your dark section even more beautiful than the whitest basswood. All scratches, stains, and joints would thus be hidden; the producer would be sending his advertisement and other apicultural literature broadcast into every honey-consumer's home, besides saving this desirable honey-producing tree. I don't think, either, that a section made of cheap material that can be procured around any factory and thus labeled would cost any more than the present linden production; and even if it did, the preservation of the basswood would surely more than compensate. J. H. MARKLEY.

Carbondale, Kan., June 16.

The same thing has been suggested many times. The only difficulty is the amount of labor required to put the paper on nicely. I do not believe it could be done profitably. I am inclined to think, too, that most kinds of paper would soil more easily than the basswood. You see, the paper must be exactly the width of the section, to have it look well. Folding the edges down over the edge of the section would be very nice, but this makes still more labor, and it is a hard matter to get it down nicely and have it stay. Have any of the readers of GLEANINGS ever put this into practice? The pasteboard boxes which we sell in large quantities to slip the section into come pretty near what you suggest, and it is not very expensive. We heartily agree with you in regard to the consequences of slaughtering the basswood. What else can we do?

SPACING BROOD-COMBS.

AN OPEN LETTER TO DR. C. C. MILLER.

"WHAT is the proper distance from center to center to space brood-combs—1⅝ inches?" asks Dr. Miller on page 416, June 1st GLEANINGS. He then goes on to tell us that, so far as he knows, this distance is all right, and concludes with "*somewhere* about 1⅝ inches from center to center is right; but I don't suppose it is exactly 1⅝. How can we find out what it is?" when he next adds, "Upon that depends our spacing and the width of our hives." It is hardly necessary for me to say that I read this article of Dr. Miller's with more than common interest, although I read all of his articles with interest beyond what I do those of most of the writers, for he has a peculiar and fascinating way of getting at what he wants, without committing himself very positively as to any thing; hence we must read with interest to find out where he stands. Friend Root's foot-notes were right to the point, for I really feared that we might yet be able to place our combs so close together, if some one carried out the doctor's reasoning a little further, that we

should need no bees at all, but could fill out our hives solid with combs of brood with only a few bees and the queen around the outside, which would so cheapen honey that the most of us would have to go out of the business, leaving the doctor and Bro. Heddon in possession of the field alone. Well, now, doctor, I will tell you just what is the right distance from center to center to space brood-combs. It is *exactly* 1½ inches; no more and no less, where all worker combs are used, and 1⅝ inches where drone comb is used. You said you did not know why 1⅜ is better than 1¼ or 1½, but I will tell you *why* 1½ is the right distance, and how I know it to be so. You know, doctor, that I am great for following nature, even if Bro. Root does say that in queen-rearing I am the furthest from nature that any one can conceive of. Nature told me that 1½ inches is right when I made my first hives, more than 20 years ago. At that time I could not find in any of the books on bees that I then had, how far apart the frames should be placed; so, in order to ascertain, I went into the loft of the barn where were stored all the old box hives from father's old apiary, to the number of some 30 or more, and, upon measuring the inside of the tops of the hives where the combs had been cut from, I found that all of the central combs were just 1½ inches apart, while some of the combs near the sides of the hive were from 1⅝ to 2 inches apart; those being the furthest apart where the combs run in the hive so the last one comes in the corner. Since then, whenever I have come across a box hive where the bees were out of it, I have measured the distance of the combs apart where they were attached to the top of the hive, and I have found them invariably the same, to an exactness approaching the thirty-second of an inch. Is it to be supposed that the bees do not know what is right in this matter, when they have to furnish food, fuel, and the whole business? In order to keep up the necessary warmth for brood-rearing in early spring, the bees form a living wall around the brood, thus keeping the heat from escaping the cluster; and to do this it takes the depth or thickness of two or three bees all the way around, as I have often ascertained by tipping up the hives at that time of year. Did you never tip up a hive carefully some frosty morning in April, doctor, and closely examine the bees between the ranges of combs? If you never have, it will be an interesting thing to you, if you are any thing like me. How nicely they are packed, all with their abdomens pointing away from the center of the cluster! This is the hive proper; and inside these bees, brood-rearing is going on nicely, while some unlucky bee on the outside is so cold that it can hardly walk or move. But, enough on this point, as I wish to look at some other of the doctor's calculations.

He says, "If I am not mistaken, worker comb, when first made, is ⅞ thick." In this he is very nearly if not quite right, for that is as I find it to be; but when he comes to figure this same ⅞ in his calculation of distances, even did the combs never grow any thicker, he is making a great mistake, for there is one factor which he does not take into consideration, which is, the capping of the brood. When the brood is capped in this ⅞ comb, Dr. M. will find that, from outside of cappings to the opposite outside, is exactly one inch; and where the combs are so old that they are one inch thick, with no brood in them, they will be 1⅛ thick after the brood is capped. Dr. M. will see that this does away with all the calculations in his article, and leaves him at "open sea" full more than he was when he commenced. I had measured worker brood many times; but to be sure I was right I have just come from measuring many combs, and can find none—no, not one—with capped brood, that measures less than one inch, although I have measured some having brood in for the first time. The way I measured was as follows: I took a small steel wire, which had been painted black, and filed one end to a sharp point; then beginning at ⅞ I made a nice rule by marking $\frac{3}{32}$ of an inch on it up to 1⅛ inches. I now went to the hives, took out combs from different ones, and pushed this wire through the sealed brood till the point began to make an impression on the sealing on the opposite side, when the ruled side gave me the depth, and in no case was it less than one inch; while the older combs were all the way from that up to 1⅛.

Another thing: As the bees rambled by on the comb alongside of this rule, I found that they stood on the comb so that they were all the way from $\frac{3}{16}$ to ¼ inch high; and as I claim that the combs should be far enough apart so that the bees can stand back to back if they wish to, this would say that the combs should never be nearer together than 1½ inches. I might go on and tell how I had tried friend Pond's close spacing, and various other experiments which I have made, which were not satisfactory, till I now space all combs for worker brood 1½ inches apart; but it would make this article too long, so I will say adieu where I am.

Borodino, N. Y., June 19. G. M. DOOLITTLE.

I have always told correspondents in GLEANINGS that 1⅜ was the proper spacing; but when I read your article through I was up in arms, ready to take issue with you on the thickness of capped brood. But before replying to you I thought I would go out into the apiary and see how *our* bees did. I first went to one of the kegs containing one-inch wire nails; selected two or three that were exactly that length by a rule. I then measured old and new brood comb, and into each I pushed the nail up to its head. I found in every case that the point of the nail stuck out ⅛ inch. These combs were some that we had stored away in the house-apiary. Some had been used seven or eight years, and some only two years. Some was natural comb, but the most was built from foundation. We (Mr. Spafford and I) then went out into the apiary, selected at random combs of sealed brood, pushed the wire nail through so the head was just level with the capping. The point of the nail just pierced the capping on the other side. We measured old and new combs of sealed brood, and found them all exactly an *inch thick*. I had expected to find some thicker, but did not. Well, now, if capped brood is as a *rule* one inch thick from capping to capping, on 1⅜ spacing, we shall have just ⅜ inch between the surfaces of capped brood. We usually consider that ⅜ is a large bee-space, ¼ small, and $\frac{5}{16}$ just right. Now, if I measure bees rightly I can not make them in our apiary *average* over $\frac{3}{16}$ high on *sealed* brood. On *unsealed* brood they stand a little lower because their feet extend a little into the cells.

Unsealed brood is ordinarily only ⅞ inch thick and requires more care, attention, and warmth than does *sealed* brood. The *average* unsealed brood is ⅞ in. thick. Therefore, in 1⅜-inch spacing there is ½ inch between the surfaces, and plenty of room for the bees to back in and out of the cells. After it is sealed, ⅝ in. is enough, I think. Now, while I would admit the facts about the *thickness* of comb and brood, I would not quite agree with the *conclusions* you draw therefrom; 1⅜ spacing I should still think is enough. Some of the bee-keepers in New York, using standing frames and fixed distances, and having had their frames spaced 1½ inches apart, have now abandoned that spacing, and have adopted, instead, at considerable expense, 1⅜ spacing. D. A. Jones argues for 1⅜ and 1¼ inch spacing. Frank Cheshire says scant 1⅜ is correct, because it results in the exclusion of drone brood; Langstroth, years ago, allowed that distance—1⅜. Now, I never heard that these authorities or their large following could not rear as much brood as those who used wider spacing. In our apiary we used to use nine frames, and this gave us about 1½-inch spacing. The result was, that we had crooked and bulged combs. Latterly we have been using 1⅜, and like it better. It is true, as you say, that the combs in box hives are 1½ inches apart in the center. A number of correspondents have reported this to be true; but because Nature does so, is it any reason why the bee-keeper who wishes to properly *control* the hive should adopt this spacing? Nature sets out trees promiscuously, scattered here and there; but the fruit-grower likes to have his trees in rows; and so do all of us who like to have shade-trees, and wish to adorn our homes. While we must pay some regard to nature and her methods, yet there are improvements that necessitate changes. Nature spaces combs for both winter and summer, and for drone and worker brood. Is it not desirable to have these things under control? In winter we want wide spacing; and when honey is coming in, I believe that closer spacing helps very materially to force the bees into supers, although I may be mistaken. In the sections we want combs over 2 inches apart from center to center. Now, friend D., it may seem a little like presumption in me to reply to you before Dr. Miller has had a chance. The fact is, I have studied this matter a good deal; and after a good deal of investigation I have formed some conclusions. I will not say positively that 1⅜-inch spacing is right; but there is an *awful* big following who are using it, get big crops of honey, and lots of brood. I am aware, also, that there are perhaps as many using 1½-in. spacing. The majority of our "Question-Box" respondents vote for 1½ inch, but it seems to be because they *happened* to use this distance at first, and have continued it since. Perhaps Dr. Miller will now be better able to decide which is right—1½ or 1⅜. ERNEST.

Ernest has covered the whole ground so thoroughly that I hardly need add any thing. I will call attention, however, to the fact that most of the remarks above take it for granted that the combs are pretty accurately spaced; whereas, in real practice the combs are never accurately spaced. The only way in which accurate spacing can be preserved, that I know of, is to have frames at fixed distances, and always put them into the hive in the same order. Then you have it. If, however, they are swapped about, the distances are being continually varied, and, as a consequence, the bees do more or less tearing down and building up every time the frames to the hives are removed; therefore I should say that, in the light of the facts given by friend Doolittle, we certainly need a little more than 1⅜ inch.

WORKING ON ALFALFA.

WONDERFUL RESOURCES OF THE LOCALITY OF GARDEN CITY, KANSAS.

I ARRIVED here the 25th of April, with 60 colonies of bees, for the purpose of securing honey from the great alfalfa fields. The bees did moderately well from the prairie blossoms before alfalfa came in, which was perhaps two weeks ago. They are now becoming strong, and some have swarmed. I think most of the honey comes now from alfalfa, although I find the bees thicker on the prairie flowers. If there should be plenty left for seed of the first crop, I shall probably get a good yield from it. They get seed generally from the second, although some try for two seed crops. There seems to be little honey in the first blossoms. The only serious obstacle in the way of success with bees here is the wind, which is often strong, and comes pretty near being constant. I believe there is a great future in this country for the farmer and horticulturist. I never saw such healthy-looking fruit-trees before. They have the conditions of Cole's "New Agriculture" to perfection here—an underflow from 4 to 15 ft. from the surface near the river, say two miles wide, and on higher land 60 ft. Also in some valleys back from the river it comes near the surface. It is inexhaustible. There are wells here four feet deep which can not be drawn dry. It is like dipping from the river, with a fall of seven feet to the mile. A way to irrigate, independently of the river and the dams, which may wash out, will readily suggest itself. J. B. COLTON.

Garden City, Kan., June 16.

COVERS TO HIVES; SAGGING OF TOP-BARS, ETC.

DR. MILLER DEFENDS HIMSELF LIKE A MAN.

DON'T you think it's a little rough for you Roots to come at me as you've done on page 466, and the whole crowd of you to jump on to me? Well, let me take you one at a time. First, the old one. You think the Simplicity cover warmer than the flat cover. Yes, and so are the telescope ones I formerly used better and warmer than the Simplicity; but there's more simplicity about the flat cover than either of them, and on that account I prefer them. You must use a quilt of some kind with the Simplicity cover, and the most of the flat covers are all right with no quilt. It's the exception when a flat cover doesn't fit right, but I don't like the exceptions.

As to diagonal wires and tin bars preventing sag-

ging, *do they?* I have heretofore said I had no trouble with sagging; but since exactness of bee-space has been so much insisted on, I am troubled with what didn't trouble me before. All the sagging didn't trouble me as much heretofore as the tin bar would. But when you come to the matter of exactness, lay a dozen of your frames one on top of the other, and see if the top-bars are all exactly straight. *How* do the diagonals and bars "make an absolutely sure thing against sagging"? The tin bar simply ensures an exact distance between top and bottom bar, but that does not prevent both sagging. The diagonals insure that there shall be no more sagging than their length will allow. If the diagonals are drawn too tight, will not the top and bottom bars bow up? and if not drawn tight enough, then sagging follows. Theoretically, the whole thing depends on drawing the wires just tight enough, but possibly that may not be so difficult in practice as in theory.

Now for the young one.

That cleat. You know that the cleat is stiffer before that groove is cut out of it. The board must stay secure in the groove, and nails alone will allow a board, I think, to warp a little more. Still, no serious trouble comes from that when the cover is of a single straight board; but I have some made of two boards with a tin-trough arrangement to prevent leaking, and they have warped more. The principal difficulty comes, however, not from the boards warping, but winding. No cleat can prevent that. You say you never saw a cover of the Dovetailed hive that warped any. Neither did I see any of mine when no older than yours. I suppose you will say I ought to have painted my covers; to which I have no reply to make. Perhaps the trouble comes more from the hives being out of true than the cover, and you needn't throw up to me the squareness of your Dovetailed hives. Just as fast as my old hives become too rotten to use, I'm going to have Dovetails in their place. No, I don't put tin on my flat covers, but I did on my wider covers, and I'll mention an objection to the tin. It doesn't allow evaporation, and water stands on the inside of tinned covers in large drops, quite often, from the breath of the bees.

BEES KILLING DRONES IN JUNE.

I never saw so much of it before. It can hardly come from scarcity of stores, for every shake of a comb brings a shower of thin honey. Perhaps it may be where a young queen is about to take the place of the old one. And now a question:

WHEN DOES THE SUPERSEDING QUEEN TAKE THE PLACE OF THE OLD ONE?

Or, rather, when is the old queen removed? Does the young queen generally kill her when she first hatches out, or is the old queen retained till the young one gets to laying? Economy would suggest the latter as the better course, and my observations, lately, have inclined me to the opinion that it may be a very common if not the usual course. Can you tell us how it is?

ARE BRACE-COMBS DESIRABLE?

Doolittle generally knows what he is talking about; but isn't there something different about his arrangements that makes the difference? I find that my bees go to work in the sections just as soon as any thing is to be put in them; and even when there is so little to store that they can only fill the bait, I have had them in the late years of failure fill the bait and leave the other sections untouched. Surely, I don't need brace-combs.

Marengo, Ill., June 21. C. C. MILLER.

Look here, doctor: the old telescope cover takes too much room, of course, for you and I who have out-apiaries, to load bees into wagons. Diagonal wires and tin bars do prevent the sagging, but they must be very nicely put in and adjusted. The tin bar must be used so long and no longer, and the diagonal wires must be just so tight and no tighter; and, since you mention it, I *do* remember that I almost always scolded when we fixed up a lot for our own apiary.—My impression has been that the old queen is rarely if ever killed by one of her own daughters. The only proof to the contrary that I can think of is that we do not often find two queens, mother and daughter, in the same hive. I do know, however, that there *are* two, a good many times, when we *don't* know it. Excuse me if this statement is a little contradictory. Now, doctor, do you mean to say that your bees always go to work in sections when they ought to be at work there? Don't you know some contrary colonies that cram the brood-nest and leave the sections untouched?

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 163.—*What width from center to center do you think it best to have brood-combs? Do you keep them the same distance the year round?*

1½ inches. 2. Yes.
Wisconsin. S. W. E. FRANCE.

1. 1½ inches. 2. I do.
Illinois. N. W. C. MRS. L. HARRISON.

1. 1½ inches. 2. Yes.
Illinois. N. W. DADANT & SON.

1½ inches, and the same above as below, as I extract only, and am so often changing combs up and down. 2. I do.
California. S. W. R. WILKIN.

I always have used 1½ inches, and see no good reason for changing. The bees build them thus when left to their "own sweet will." 2. Yes.
New York. C. G. M. DOOLITTLE.

If I could have the combs always hang perfectly true, I would have them 1¼ inches. 2. No. In the spring I crowd them as close as they will bear to be; in the summer, 1½ inches from center to center, and further apart still for winter.
Ohio. N. W. A. B. MASON.

1½ inches is the distance we use them. I am not prepared to say it is the proper distance. 2. We do not change them, although we have the excellent authority of Mr. Manum for so doing. Unless well protected, my present limited experience is against narrow spacing for spring brood-rearing.
New York. C. P. H. ELWOOD.

1. 1⅜ inches; 8 in a hive, 11⅜ inches wide inside. 2. Yes. I think it somewhat better to spread them a little wider apart in the winter, but not enough better to pay for the trouble.

Illinois. N. C. J. A. GREEN.

Mine are 1⅜, but I don't really *know* whether that is best. 2. Yes. There might be some advantage in having them further apart in winter than in summer, but I don't believe it would pay for the trouble of changing.

Illinois. N. C. C. MILLER.

I have my frames about 1½ inches from center to center, and do not have them fixed so as to be just so far apart. I have used those that were spaced, and did not like them. I can space with my eye to suit me best; a slight variation is not objectionable.

Michigan. C. A. J. COOK.

1⅝ in winter, in order to allow more bees to cluster between the combs, which gives them a better opportunity to generate more heat between combs. 2. No. I think 1 5/16 or 1⅜ is about right when working for box honey, as I think bees will enter the boxes more readily when the combs are closely spaced.

Vermont. N. W. A. E. MANUM.

1⅜ inches, but I am not particular that each frame is exactly spaced. With hanging frames, the eye gauges the distance. I have practiced taking out one frame during winter, and giving more space; but after several years' experience I can not see that the bees winter any better with the added space.

New York. E. RAMBLER.

About 1⅜ inches; a little less rather than more. I say, *about;* perhaps it is not best to be too definite about the matter until we understand more of its importance. I suspect that, in the future, there will be more importance attached to the adjustment of the brood-frames than there has been in the past. 2. Yes.

Ohio. N. W. H. R. BOARDMAN.

The best results are obtained when the frames are apart from center to center about 1½ inches, or a little less. It is not necessary to attach great importance to the one-sixteenth of an inch. 2. Careful and repeated tests have convinced me that no improvements are realized by spreading the frames during the winter months.

Ohio. S. W. C. F. MUTH.

The room for difference of opinion here is but a small fraction of an inch. Between the widest and narrowest spaces that are used by good apiarists I do not think there is much to choose. One and a half inches is perhaps as good a distance as any. 2. When convenient I like to widen the space a little when fixing them for winter; but the matter is hardly important enough to justify breaking open all their sealing on purpose to widen the space.

Ohio. N. W. E. E. HASTY.

1½ inches. A large per cent of my colonies are in the Gallup hive, inside dimensions 12×18×12½ inches high. In hiving young swarms we use 12 frames to the hive; space 1½ inches apart; but with old combs, and combs bulged a little, we run many with 11 to the hive, to facilitate matters in handling, rather than to keep all pared to the right thickness. 2. We have practiced, to some extent, spreading the frames in fall, but have concluded that it does not pay for the trouble.

Wisconsin. S. W. S. I. FREEBORN.

After trying many distances I allow 11½ inches for eight frames. 2. Yes, sir; and any system proposing to space the frames differently between winter and summer will get behind the times, for no such kind of manipulation can be afforded by the successful bee-keeper of to-day. That is what I think. By the way, it will be well enough to here mention that I am writing what I think, and not what some one else thinks. I respect other people's opinions when they differ from mine, and I believe I deserve some respect for writing my honest opinion, regardless of others.

Michigan. C. JAMES HEDDON.

See answer to G. M. Doolittle on page 491.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THOSE SERMONS; WHITE CHITTIES.

I am more interested in your sermons than I am in the bee business. I have, or keep, only a few bees. I subscribed for GLEANINGS on account of the bees, but now I read the sermons first, and they have become part of my spiritual life. May God bless you in your work of faith and labor of love. I want to tell you that we have *white* "Chitties" here; two per cent a month in advance every three months, and corn *thirteen cents per bushel!* The only difference I see between Munson's Chitties and ours is the color of the skin and amount of clothing.

THOMAS ADAMS.

Gaskill, Kan., Feb. 24.

Yes, friend A., there are white Chitties, I fear. Now, there is great need of a good Samaritan right in this line; and I do wish that somebody—lawyer, minister, banker, or political economist, would tell us how men of capital can help poor people in trouble, by loaning them money at a low rate of interest. If I am correct, these high rates of interest are always received where an investment is risky—so risky that the money-lender loses a great many times. He takes risks that an ordinary banker or money-eyed man would not take at all, therefore he gets a rate of interest that will allow him to loan his money so that he can afford to lose one time out of three or four. It seems to be a sort of lottery business; and as his very life (that is, his financial life) depends on getting his money, he gets hard, unfeeling, and unscrupulous. The experiment has been tried to some extent, of giving money outright to those who were in need. Sometimes it works well, but too often it only encourages the one helped, to go into some new piece of extravagance or folly. Why can't this whole thing be managed in the spirit of love between the money-lender and the money-borrower? I feel sure there is something wrong on both sides, or there would not be that bitterness that exists between the two parties. Right in this same line we have the pawnbroker, who advances money to people who are in seeming distress.

It seems to me the pawnbroker might be and ought to be a *very* good Samaritan. But just think of the estimation in which he is held. His very name is a slur and a reproach. The world seems to think it is a disgrace to be seen going into such a place as a pawn-shop, and a still greater disgrace to keep such an establishment. It really seems that the world means to have us understand that anybody ought to be ashamed of himself who gets into such straits as to have to pawn his possessions. But, dear friends, how about the homeless and the friendless, the sick and the suffering, and the widows? Perhaps the world will say that it is everybody's business to stay where they are known, and to have friends, and that everybody who is fairly deserving does have friends who will stand between them and want in the time of need. This may be so; but the whole matter is a sad one to me. Let those who so severely censure the money-lenders remember that lending money is hard, severe work—work that wears and tears on the mind and body. It is easy to *lend;* but I tell you, my friends, it is hard to get your money *back*. We ought to know something about it, with all our bookkeepers and clerks to look after the little dribs as well as the big ones; to look after the continual stream of losses that would break us down financially if we did not almost fight for our own. I have sometimes wondered whether the good friends did not think *we* were hard, cold, and unfeeling. If they do, please read over again the article on page 341, 1889. Now, dear friend A., do not, I beg of you, think this little sermon hard and unfeeling. It has been written with the kindest feelings toward erring humanity I ever had in my life. I do know that it is terribly hard to sell corn at *13 cts. a bushel*. May God grant that the time may come when some of these very poor people we have been talking about shall have the opportunity of *buying* the corn, providing it *must* be sold at such an insignificant price.

AN ATTACHMENT FOR CATCHING GRASS FROM A LAWN-MOWER.

I send you a sketch of an apron for a lawn-mower, which I made last summer, and found it did very satisfactory work. It keeps the grass from falling on the ground, and so saves the necessity of raking it up; and while raking is not very pleasant work, it also takes time, and it leaves the lawn with a ragged appearance. It may be made as follows:

Get a piece of heavy steel wire, about six feet long, and two strips of pine, 1x½ inch—one 18, and the other 20 inches long. Also two thinner strips the length of the knives on the mower. Lay the first two strips down on the edge, with the shorter one at the right hand, and then nail the thin strips down on top. Bend the wire, and fasten it on top of the framework, with either staples or small wire, leaving about 4 inches at each end for a hook. The wire should project further toward the left hand, as the knives throw the grass that way. The other side should not reach beyond the wheel, as it would be in the way of running close to trees or buildings. The hooks are made long, so that there may be a chance for fastening them, after passing around the roller bearings, thus holding it firmly in place. The front ends of the runners should be rounded, so they will not catch in the grass. Fasten stout strings to the back of the runners, long enough to tie to the handles. Now cover over all with enameled cloth, with the enameled side up, and hem the edges under. Hook on to the machine, fasten securely, and tie the strings to the handles, so the back of the apron will just clear the ground, and it is ready for business. Unless the grass is quite tall it will run quite a while without being emptied; then it may be shoved off in a pile in a convenient place, and afterward gathered up. The weight of the extra load is scarcely noticeable, and I think any one who uses a lawn-mower will find it a saving, both in time and labor. I have not found it necessary to have a curtain around the sides, as but little will fly over unless it is very windy.

Farina, Ill., Apr. 25. D. M. ANDREWS.

FOUR-BANDED ITALIANS; WHERE THEY CAME FROM.

Friend Root:—In reply to your inquiry on page 378, May 15, 1890, I would say that, in the fall of 1882, I bought of G. M. Doolittle a select tested queen of the golden Italian strain, with which I was greatly pleased on account of the gentleness of worker progeny; but in the spring following I lost this queen by uniting a colony of black (German) bees with the Italians. Next spring I ordered from friend Doolittle another of his best select tested queens, and from this one I got my present strain of four-banded golden Italians. It is true, as friend Doolittle will tell you, that I have greatly improved them in that beautiful golden color, and I have established a strain of Italians producing uniform red drones, and at the same time I have tried to keep them up to his standard for gentleness and honey-gathering. How I have succeeded in my efforts in this direction, many of my patrons can testify. I don't claim them to be better honey-gatherers than the imported Italians, but that they are equal to them in this respect, and much more gentle to handle than any other bees I have ever tried; and as friend Doolittle said some time since in GLEANINGS, "If we can combine beauty with the other good qualities of the Italians, are we not a step in advance?" To get these bees up to the present standard I have devoted six or seven years; and for this labor I feel amply repaid, both in dollars and the satisfaction of knowing that, with the continued assistance of friend Doolittle, I have greatly improved the ordinary Italian bee. L. C. HEARN.

Frenchville, W. Va., May 20, 1890.

ANOTHER PLAN OF HORIZONTAL WIRING.

I herewith give my way of wiring frames, which I have used for some years. You will notice that it is on the same principle of tension as the one given by E. D. Keeney, in May 15th GLEANINGS. I first stretch the wire four times across the frame through the end-bars, then draw tight, and fasten. I then take a piece of wire and wrap it once around the center of top wire, then around each one below in succession, holding with the other hand in such a way as to draw each toward the center, giving them all the tension they will bear.

Economy, Ind. A. G. MENDENHALL.

I had studied out your plan, friend M., and was about to give it to the readers of GLEANINGS as a superior method when

Keeney's plan was presented to me, and I at once thought it was so superior that I would abandon my plan and give Keeney's instead. Superior in what point? Because the tension is on the four corners of the frame, and not in the end-bars, as in mine, or, rather, yours. As Keeney's takes no more wire it does not require to be pierced, and only four bent nails, together with the fact of tension being produced at the strongest points, decided me as to its superiority. I am glad to know you have used it some years with success, for it helps to prove that Keeney's plan must likewise be a success.

MELTING OLD COMBS WITH OLD POLLEN IN THEM, AND HOW TO DO IT.

Being an old subscriber, I take the liberty of asking a few questions. In cutting out old brood-combs for wax, is it best to save those half-full of pollen? Will the bees ever use the old pollen?

Williamson, N. Y. FRANK ADAMS.

Yes, bees will, in the spring, use up the old pollen in the combs. You can melt up the old combs with pollen in them. We recommend, in the A B C of Bee Culture, putting old combs in a cheese-cloth bag, and then weighting the whole down under hot water. The clear wax will come to the surface of the water, and the refuse will remain in the bag. A very nice, easy way, is to put all such in the solar wax-extractor, and just let old Sol give you a nice clear cake of yellow wax, without "any bother" too.

ANOTHER POINT IN FAVOR OF HORIZONTAL WIRING.

You omitted one good point in the wiring of that frame mentioned on page 371. In cleaning top-bars of burr-combs this spring I got more than 10 lbs. of wax; but the trouble is, I have to work so slow or break wires. If for this and nothing more it would have been worth dollars to me to have known it before I wired 10,000 frames this spring.

Carrollton, O. C. V. KINTNER.

Yes, we did omit to make that point. There has been so much trouble from cutting the wires on the perpendicular plan that some of the friends in ordering have asked to have the top-bar grooved to let the wires in. The horizontal wires, or the plan of wiring mentioned on page 371, would obviate this trouble.

FROM AUSTRALIA.

I am a bee-keeper—that is, if you count a man one who has 150 colonies. Between two and three years ago I started with two nucleus hives of Italians, and shortly after my brother bought four more, and these we joined; bought 20 hives of brown bees, and Italianized them, and God blessed us in our undertaking. To-day we have a nice apiary, and things look promising. We got one of your ten-inch machines, and it works splendidly. This season so far has been a splendid one; and as we have about three months more to run before the season is over, we expect to get a good store.

Brisbane, Australia, Feb. 10. A. A. MILES.

TWO INCHES UNDER THE BROOD-FRAMES A FAILURE.

Two years ago I hived a swarm on 8 Simplicity frames, raised two inches from the bottom. They did not build any comb below the frames that year. The next spring they built comb to the bottom of each frame. For a small apiary, I can find nothing as handy as old phosphate-sacks for smoker fuel. I make them in rolls about 14 inches long, and 2 thick. I use them in the Clark smoker, first taking out the grate. When I am done using it I dip the fire end in water, then the rest is saved for another go. I wish you would thank Dr. Miller for advocating the Clark starter fastener. It is as far ahead of the Parker as the movable comb is ahead of the old box. W. W. KULP.

Pottstown, Pa., May 22.

SHADE FOR HIVES OUT OF OLD SUGAR-BARRELS.

For a shade for my hives I get a sugar-barrel; and after nailing through the end and middle hoops with a small wire nail, so as to fasten all of the staves, I knock the head out, then saw the hoop in two, making two half-barrels; and after clinching the nails they are ready for use. The covers are light, easy to handle, and give good ventilation between cover and top of hive, and they do not blow off as easily as a flat cover. If they are properly nailed and clinched they will last a long time, and are not expensive.

A SIMPLE WAY TO WATER BEES.

I take a tub (I suppose any thing else would do), tie a piece of burlap over it, put in a piece of brick or stone that will keep it down in the center; and then fill in with water until it comes up about one-third of the way on the burlap, which leaves a large surface for the bees to alight on. It is only occasionally that a bee gets drowned. One advantage of the tub is, it does not need looking after, except occasionally. Try it, and be convinced.

Dow City, Ia., May 17. M. G. WIGGINS.

Friend W., you have given us two bright ideas. Thank you.

BEES WINTERED WELL, BUT "SPRINGED" BADLY.

Bees wintered out of doors well, but springed badly; but they are in good condition now; but, alas! very little basswood will bloom, and we all know what that means—no white honey from Central New York this year. We are in hopes to make it up in buckwheat. We should be pleased to see you about August 15th, and show you how W. L. C. takes care of 600 colonies with one assistant, in 7 different places. W. L. COGGSHALL.

West Groton, N. Y., June 8.

We should be glad to know, friend Coggshall, how you, with one assistant, manage 600 colonies in 7 out-apiaries. What kind of a hive do you use? Are your frames suspended, closed-end, fixed, or not fixed with spacers?

NECTAR GOING TO WASTE; A GOOD FLOW OF HORSEMINT.

Never before did I see such a flow of nectar from horsemint; in fact, my bees are gathering honey faster than they can build comb to receive it. I have 150 colonies. I run about 35 for extracted honey, the rest for comb honey in one-pound sections. Some of my extracting two-story Simplicity hives have a case of sections above the extracting story that I put on a few days ago, and are about full of as beautiful honey. Oh! I wish you were here to visit our mint-fields, and just see the quantity of it. I know you would say, "I wish my bees were here to gather some of this flow that is going to waste." There is acre after acre resembling

fields of wheat. Thousands of pounds are wasting here for want of bees to gather it. The flow is not half over yet. The tested queen I got of you is a splendid one. Her bees have about finished two cases of 1-lb. sections. Each case holds 28 sections.

Lexington, Tex., June 8. W. S. DOUGLASS.

Friend D., it would afford me great pleasure to visit your mint-fields. But are they not an indication of bad farming? So long, however, as they will grow and flourish, let us by all means utilize the honey they produce.

A HONEY THAT CANDIES IN THE HEAT OF THE SUMMER.

Friend Root:—Can you account for honey candying in the summer time? This summer we extracted about 1500 lbs. This was in November; and at Christmas time it was candied without the least signs of any moisture on the tops of the cans. From November to December the thermometer was ranging from 85 to 100 degrees in the shade. You will see by the label inclosed that we tell our customers that the honey will candy as soon as cold weather begins; but when it candied in the full heat of summer we were nonplused. I may say that this honey was gathered from the red mangrove, but it is a beautiful white honey.

A. A. MILES.

Hemmant, Queensland, Aus., May 9.

Friend M., we have for years back, every little while, had reports of a kind of honey that candies, even at a summer temperature; and this honey does not seem to be confined to any particular plant, or to any particular locality. It seems, however, as a general rule, to be confined to certain localities. I do not know of any remedy, unless it is to utilize such honey for feeding and brood-rearing. The bees can use it about as we use honey candy, such as they use when they need feeding in winter.

DID THE BEES TRANSFER THE EGGS FROM THE QUEEN-CELLS?

Eight days ago I found one colony queenless, with some young bees about hatching out. There was no young brood, but plenty of bees. I got a frame full of brood in all stages, and I put it in with them. This day I find four nice queen-cells on it, and on the frame next to it I find three cells. Did the bees transfer the eggs?

Clearfield, Pa., May 21. J. MCGAUGHEY.

Yes, friend M., the bees did transfer the worker eggs. The same thing has been several times reported. You will find it in our text-books and in the journals.

THOSE JARS FOR EVAPORATING HONEY OUT OF THE HIVE.

Friend Root:—You inquire the size of those jars I speak of on page 413. You notice I said lard-cans and stone jars. There were two 10-gallon cans, one 6-gallon jar, some 4-gallon jars. The two cans I emptied late in the fall, and refilled them from screw-cap cans. The honey from the latter was candying rapidly at the time, while the former had not commenced to grain. The 6-gallon jar was the last one disturbed. When I emptied it in January, the honey was candied at the bottom and clear at the top. At the same time, some 2½-lb. and 5-lb. tin pails of honey, with lids, filled in August, were mostly beautifully liquid. From the above I think with you that honey in open gallon vessels, exposed to a daylight temperature, ranging about 100 degrees for two to three months, would become so thick it never would candy. G. F. ROBBINS.

Mechanicsburg, Ill., June 5.

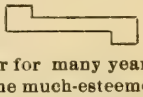
THE NICEST HONEY; BURR-COMBS AND THICK TOP-BARS.

I have kept bees for eight years. I have the name of having the nicest honey around. I had 3000 lbs. last year from 28 swarms, spring count. The most I received from one colony was 212 lbs. I sold the most of it around home. It averaged me 13 cts. per lb. I also sold some extracted honey. I have had five new swarms. The first came out the 23d of May. I prefer the thick top-bar. I have a few of ⅞ top-bar frames, which, with ¼ in. between frame and super, will not allow burr-combs to any extent. O. H. PIKE.

Mount Vernon, Mich., June 16.

GONE BACK TO FIXED DISTANCES.

I began bee-keeping, or rather, perhaps, keeping bees, in 1850; but when I read the many learned articles in GLEANINGS I see I am yet a novice. I have been much interested in the discussions on fixed distances for frames, because the first frames I ever made I made with projections on one side only; thus: This gives me the distance I wanted, and is right whichever way they were turned. I used this pattern of top-bar for many years, and was satisfied with them till the much-esteemed editor of one of our bee-journals told me that fixed distances were very objectionable, so, of course, I straightway cut off the projections; but in less than one season I got tired of spacing frames with my fingers, and often squeezing bees between the combs, in pushing them together, so that I drove a nail for a spacer, on one side only. I manage very well with them. A nail on one side is better than on both, as you have not to be so particular where you put them, and it's just half the work. Bees have been doing pretty well here lately on wild mint. Every one has had difficulty in getting swarms to stay. I lost three, but now give them a frame of brood, and they stay. GEO. E. HAILES.



Syble, Tex., June 6.

NO LOSS IN WINTER.

I put 53 swarms into the cellar, and took out 53; and after they had been out a short time they began to double up, and they kept at it for three weeks, and 16 is the number that went in with other swarms. I have not lost as many as most of my friends here. A. E. BRADFORD.

Hammond, Wis., June 3.

LOCALITY, AND HOW IT AFFECTS BEE-HIVES.

Why don't you get Prof. Cook to tell us all about the little troublesome flea, and how to master him? Mr. Root, if you and friend Doolittle were keeping bees in Texas, you would not tell bee-keepers to paint their hives white and leave them in the sun. Experience would teach you better. Bees have swarmed a great deal, but no surplus yet.

Milamo, Tex., May 23. G. W. BEARD.

BEES ON ALSIKE; RAPE SOWN AMONG THE OATS.

Mr. Root:—Yours of the 7th was received the 14th, and the goods last Thursday. Every thing was in good shape. The alsike clover seed you sent me last spring, a year ago, you ought to see how big it

is, and how the bees hum over it. The 1 lb. of rape you sent, I sowed last spring, and received no benefit therefrom. The bugs took it until the weeds came up. Then we gathered a few seeds, which I threw broadcast over my oats this spring, and I believe that every seed has come up, and is all yellow all over. Whether the oats is a bug-protector, I know not. Bees have not done well so far —at least mine. It has been too rainy for them.

PETER J. PETRY.

Port Washington, O., June 16.

REPORTS DISCOURAGING.

HEAVY LOSSES IN BEES.

Eighty per cent of the bees died in this vicinity last winter. I lost about 97 per cent. The losers all wintered in cellars. C. M. LINCOLN.

Rupert, Vt., May 20.

DISCOURAGING FOR IOWA.

Up to June 3d the weather was very dry; the clover was burning up with the hot winds. We have had but little rain for the last two years, and this spring has been excessively dry, and now the weather is cloudy; for days, damp, misty, and chill. Bees have been nearly starving, and to-day they are putting out drones. There is considerable white clover in bloom. We need lots of rain and then sunshine. The spring was cold, hence our bees did not breed as rapidly as desirable. I fear our harvest will be very limited. I think GLEANINGS is getting better and better, when I compare our GLEANINGS of years ago with GLEANINGS of to-day.

Lucas, Ia., June 10. E. B. MORGAN.

HEAVY LOSSES IN WINTER; DUG-OUTS VERSUS CELLARS.

Bees in this part of Minnesota have come out rather poorly. One man near here put 30 colonies into the cellar last fall, and now has only one left. Others have lost half of their bees, and but few have come out without heavy loss. Bees are doing nicely now, although it is quite wet for them. I have 40 colonies now. I have had good success with the bees for the last few years. Three years ago I went from 42 to 6. I was then trying to winter bees in dug-outs in the bank, but found that that was a failure. I then made a cellar for them. I bricked it up inside, and put in a cemented floor, and a frame inside of the brick wall, and lathed and plastered on the frame. Since then my bees winter in good shape. I. C. SMITH.

Lone Tree Lake, Minn., June 13.

PROSPECTS DISCOURAGING.

It has been one of the worst seasons for bees, for a number of years. Last fall, bees went into winter quarters in apparently good shape. The losses last winter were very heavy. While your humble servant did not lose a swarm, many have lost heavily. Some have lost about a quarter, some a third, some a half, some three-fourths, and a few lost all, or nearly all. Of these, one lost six out of eight; one lost all; one lost 39 out of 40. Bee-keepers in this section are becoming much discouraged. All through the month of May we had only four bright days—no chance for any thing from fruit-blossoms. Dandelions are gone, and hardly enough honey is gathered for brood-rearing. Raspberries were killed last winter or spring, so there is nothing to be had from that source. Up to this date there is no clover in bloom. Most of it winter-killed, so that at the present date the bees can hardly hold their own —not a spoonful of surplus yet. The season may yet open up very favorably. Time will tell the story. D. NOBLE.

Clintonville, Wis., June 16.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

CONDITION OF THE BEES.

OUR spring has been very backward, and it began to look as if the summer would bring us no nectar. White clover has been in bloom now for nearly two weeks. The farmers round about report seeing more of it than they have seen before in a great many years, yet, until the 22d inst., no honey had begun to come in. Prior to that time the bees had been living from hand to mouth; in fact, we had been feeding all of the colonies more or less, to keep them from curtailing brood-rearing, if not from actual starvation. Again, the bees are at work storing honey pretty rapidly just now, the 23d.

THICK TOP-BARS.

The great rush in other departments of our establishment, together with the sickness of clerks, has prevented my experimenting in the apiary as much as I ought to have done. I finally sent out some thick top-bar frames. They were wired on Keeney's plan, filled with foundation. It is hardly time yet to tell how we shall like them, although we feel pretty sure that they will never sag.

OUT-APIARIES.

By reason of the great rush in other departments, as above spoken of, and the backward spring, we have not located an out-apiary this season. On account of orders for bees and queens, we shall need all the bees we can scrape up at home.

CARNIOLANS.

We have now a colony of the above bees in our apiary, that are as gentle and nice to handle as any Italians we have in the apiary, and this colony bred pretty heavily in spite of the backward season. Mr. Spafford says, however, as to their disposition, they are at times a little more nervous than the Italians, he thinks. They seem to be a trifle larger in size. That was the impression I had formed of those we had a year or so ago. These Carniolans were obtained of Dr. S. W. Morrison, who is now about to sell off all his Carniolan apiary, being obliged to go to Colorado Springs on account of the ill health of his wife.

Since writing the above I have tested a little more the temper of the Carniolans. We always open the hive now without smoke. We made quick motions over the frames, pointed our fingers at them—in fact, did every thing we could to irritate them, except to jar the hive, and they are certainly gentle. They prove to be good comb-builders, good breeders, and have as much

honey in their hives as any other colony in the apiary. I shall be very glad to believe that the six or seven colonies of these bees we have tested heretofore have not been a true type of this race.

SOLAR WAX-EXTRACTOR.

A short time ago we bought about two dozen hybrid colonies, on natural-built combs. The latter were so poorly built out that we put them in upper stories above the queen-excluding zinc, with the queen and a majority of the bees below. After the brood hatches we put them in the solar wax-extractor. We have been using it every day. The solar wax-extractor is cerone of the conveniences in a well-kept apiary.

CROSS BEES; A LIVELY FRACAS.

For experimental purposes, one of our hybrid colonies we had decided to change from one hive to another. After the combs were transferred, as is usually the case, there were quite a lot of bees clinging to the inside of the hive. As we have done a good many times before, we inverted the old hive before the entrance of the new one, and gave it a bump to jar the bees out in front of the entrance. Then a lively fracas ensued. Almost every one of those bees flew up into the air immediately, and began stinging vigorously. In fact, the air seemed to be black with them. I confess I do not like to run from bees when I have a veil on; but having only a thin coat on, the little scamps punctured my back and arms right and left. I finally took to the evergreens in inglorious haste, leaving our apiarist, Mr. Spafford, to take care of himself. To get rid of the bees I circled around the evergreen trees two or three times. After coming back to the old place I found that Mr. Spafford had got his smoker, and was making free use of smoke. Now, it so happened that there was a small hickory-tree back of this row of evergreens; and very soon, very much to our horror, we heard the cry of children. Mr. S. and I both ran to the tree, and found that Huber and his playmate Mattie were pretty near the top of the tree, and those hybrids, evidently, had left us and attacked those helpless children with bare legs and bare heads. Frantic with pain they clambered from one limb to another. I yelled to Huber to jump into Mr. Spafford's arms, and then I ran for the other boy. He was then ten or twelve feet up the tree. When he was within about eight feet I called out to him to jump. He hesitated a moment, and then finally did as I requested. I caught him safely in my arms. By doing this we left the bees eight feet up in the air, buzzing around whence their victim had suddenly disappeared. Huber, fortunately, had received only one sting; but Mattie was stung something over a dozen times about the face, head, and neck. The probabilities are, that the bees attacked Mattie first, and, drawn on by the scent of the poison, they began giving him an unfair dose. After reaching the ground safely, the boys needed no invitation to scamper to the house, which they did, followed by your humble servant. Both boys were crying with pain. I quickly removed the stings by scratching them out, without pressing the poison-bag. There were so many stings in Mattie's hair that I was forced to resort to a fine comb. We finally removed them all, and his face was bathed, and he was taken home. The stings had no other effect than to give him a good big swelled head and fat cheeks. Huber had received only one sting, and it did him no very serious injury. For some reason, Huber is very sensitive to the effect of the poison. His mother thinks, if he had been stung as much as Mattie was, it would have killed him. However that may have been, we are glad that it was no worse than it was. Mattie has been stung a good many times, but does not seem to be affected much by the poison.

After removing the stings I went back into the apiary, and found the air was full of mad bees. I carefully adjusted my veil and went out among them again, having first prepared myself with a couple of flat boards, about 10 by 15 in. These I clapped together, cymbal fashion, in such a way as to kill half a dozen at every stroke. I continued this for ten or fifteen minutes, until I killed all or nearly all the mad bees. The apiary again became quiet, and all was well.

One other time, by some little hook or crook we had gotten the bees stirred up so that the air was literally black with the infuriated insects. We did nothing further than to close the hive up at the time, and avoid that part of the apiary as much as possible. There was a whole week that we could not go anywhere near that hive. They stung every thing and everybody that chanced to come within a few yards of them; and for two or three weeks after, they gave us more or less trouble. After the recent occurrence above related, I concluded that all the angry bees were probably in the air; and that, if they were going to be troublesome for a week or more, and possibly sting a valuable horse, or get after more children, they might just about as well die then as at any other time, and so I proceeded to kill them as above stated. Mr. Spafford was in another part of the apiary working, and he told me afterward, as he saw me with the two boards clapping and smashing the bees that were about me, that there was a literal swarm about my head. I stood and kept killing the bees until they were all dead. The apiary was then as quiet as ever, and we have had no annoyance since.

It is a well-known fact, that one or two angry bees will follow an apiarist about the whole day, and possibly annoy him other days, if they are not killed. Killing them puts an end to the annoyance, and allows the apiarist to go about his work among his bees with his veil raised up, enjoying all the comfort he has a right to have. It does not pay to let those angry fellows live after they are so thoroughly stirred up. I presume I must have killed, at a rough guess, some 200 or 300 bees; and what was the loss of that many bees compared to the continual annoyance of being stung every time any

one came within a few yards of their hive? Their sisters in the hive, not having knowledge of what their sisters outside were doing, seem to be fairly quiet with ordinary precaution.

MYSELF AND MY NEIGHBORS.

Lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal.—MATT. 6: 20.

THERE are three things that I wish to talk about to-day. First, "our homes;" second, "our neighbors;" third, strawberries; or, if you choose, the cultivation of strawberries. Can any one lay up treasures in heaven by raising strawberries? I feel sure he can; and the very thought of it animates me and gives me energy, enthusiasm, joy, hope, and finally health—yes, health. Health comes as a result of honest enthusiasm in some praiseworthy object, a great many times, when it will not come in answer to the combined skill of our greatest, wisest, and best physicians. Perhaps I might as well tell you, to commence with, that neighbor Terry has been for some time hard at work writing a strawberry-book. Perhaps it was nearly a year ago that I told him I wanted him to get a good ready, and write me a strawberry-book very soon. I was not much surprised when he replied that that was just what he would like to do. I do not know but he said he had been thinking of it. When I met him at one of our institutes he asked me if I had considered that he was only a very novice in the berry-business. I told him I had, but that I would give more for his fresh enthusiasm, even if he did not know so much, than I would for something written by some of the veterans who had lost their enthusiasm, and to whom the subject had become an every-day affair. There is something wonderfully interesting in seeing any one take up any of these industries, when a great part of it is new to him. I like to see a boy or girl who has become excited, and is full of energy over bees, strawberries, chickens, or any of these outdoor industries. As I look back and think of the enjoyment, and the new thrills that have come as I have taken up each new subject in turn, it makes me feel young again.

Well, when the first chapters of the strawberry-book came we were so full of business I did not pay very much attention to them. I knew that, when the printers got ready to take hold of them, I should have to read them any way. In fact, I have become so tired of reading letters and following out the different lines of business through the letters, that I do not know but I have lost energy somewhat. Before I got through with the strawberry-book, however, it all came back. Why, in the concluding chapters I could hardly sit still. I looked at my plants out in the plant-garden, and I looked at the ground on the hill by the windmill where I am preparing to plant berries, and I could hardly contain myself. Before I got many pages further, I got into a fever to visit friend Terry. But there were the letters piled up, many of them grievous complaints because the writers had not got their goods. I could not be spared one whole day, and I did not feel as if it would be right for me to desert my post so long. I did, however, write to friend Terry that I wanted the privilege of dropping in upon them some night between nine and ten o'clock; and I wished them, also, to let me go back about seven or eight o'clock in the morning. I bade him tell his good wife that all the preparation she need make for my entertainment was plenty of bread and butter for breakfast. With the berries I could help myself to, I should be quite satisfied and happy. Then I counted the hours until a reply should come. A reply did come—not in answer to my letter, however, for it was written before my note had been received. Here is a part of friend Terry's letter:

Friend Root:—Our patch is a grand success, bringing us about $15.00 a day. We get *our* price, without a bit of trouble, in spite of great competition. Plenty of room *up above.* T. B. TERRY.

Hudson, O., June 18, 1890.

I received it just before noon. Friend Terry lives about 25 miles from us; and a little before four o'clock, one of our Clydesdale horses was standing before the office, waiting for me to get the letters looked after so I could be spared until the next day at noon. My wife admonished me that the barometer was falling, at a pretty good jog. But the strawberry fever was too strong to be allayed by a summer shower, so off we started. My teamster has always been rather skeptical in regard to Mr. Terry's farming; and I am sorry to say that a great many farmers and teamsters throughout our land are somewhat the same way, and yet I do not believe that they could give any good reason for it if they were to try. I rather enjoyed accepting his invitation to go along with me to take care of the horse. Mrs. Root said, before I went away, something like this: "Now, husband, remember that Mr. Terry's folks are in the midst of farming, besides taking care of their berry crop, and very likely Mrs. Terry is burdened. Stop somewhere and get your suppers, and feed the horse, so that you may make them as little trouble as possible."

We came into the pretty town of West Richfield just about six o'clock. Did I ever tell you that I have an especial liking for hotel-keepers? Well, I have. I like every thing about a hotel—especially the country hotel. I like the landlord and the landlady; I like the girls who wait on the tables (as you may remember); I like the boy who tends to the horses in the stable; yes, and I like pretty well the folks who lounge around the door and bar.* I should like them better, however, if they were busy in something good—in the line of our text, for instance. These country hotels are homes for

* When I use the term "bar" I do not mean a place where drinks are sold, as used to be the custom forty years ago. A good many of our country hotels here in Ohio do not sell any thing at the bar—not even cigars or tobacco. Perhaps the term "bar" had better be exchanged for "office." I wonder how it is with you, friends. Do the hotels in your small towns nowadays sell drinks of any kind?

homeless people; and I always enjoy seeing how well they carry out this idea.

"My good friend, we want some supper just as soon as our horse can eat his feed. We have quite a piece to drive yet, and we wish to get there before the people have gone to bed."

I was pleased to see how quickly he moved to the kitchen to tell the women-folks to start it going. Then he directed in regard to the care of the horse, and stepped briskly to the meat-shop; and almost before the kitchen door was shut we heard them pounding steak. Before I had time to become impatient or nervous, we were called to partake of the nice steak and potatoes, with a couple of fried eggs, nice sweet butter, good bread, and a good saucer of strawberries. If you want to see me have a good appetite, just let me ride twenty miles across the country. For serving us thus handsomely, the whole charge was only 25 cents apiece. The horse counted the same as a man. Now, when I get promptly served, and yet on such short notice, do you wonder that I thank God for hotels, and that I feel kindly toward hotel-keepers?

Just a little before nine o'clock I had the pleasure of telling my companion, Mr. W., that this was friend Terry's home. I watched him as he looked at the bright pretty barn and tool-house in the dim moonlight. Friend Terry was off to Hudson, with berries; but his son and a hired man welcomed us.

"You said you would be here between nine and ten; but you are a little ahead of time, are you not?" said the young man.

I always *like* to be ahead of time. It is a grand idea, in business, boys, to make your promises, even in traveling, so that you are on hand a little *sooner* than you agreed to be. You try it awhile, and see if you don't find that I am right. We were warmly welcomed by all the family, even if we did come three or four days before we were expected. Friend T. soon returned, then got a lantern, and we went to see those wonderful strawberries. The first glimpse I ever had of the Grand Rapids lettuce was by the light of a lantern. I shall never forget it. By the way, there is something wonderfully fascinating to me in going about among the plants after dark. How cool and beautiful the ground looked in friend Terry's new plantation of strawberries! The beautiful, thrifty little plants, each one as much like its neighbor as two peas can be alike, at exact distances (rows four feet apart, plants two feet apart in the rows), with all the intervening ground in process of being raked until nothing *could* live except the strawberries—why, I fairly ached to get hold of a fine-tooth steel rake, just to stir the beautiful, fine, soft rich loam. If there were any weeds, they had not come to the surface of the soil. In fact, weeds never get so as to be visible on the Terry plantation. Then we went with the lantern over to that half-acre in full bearing. I have a photograph of it that I will show you before long; but no photograph can begin to do justice to the sight we beheld. The varieties of strawberries are selected so as to have no rusty leaves. Every leaf is thrifty, perfect, and has that bright new look that indicates a rank luxuriant growth. The whole ground between the plants is carpeted with cut straw, so not a berry can find any thing gritty or that will soil it in the least. Strawberries growing and *ripening* on "straw"! and, oh what clusters of them! It seemed as if there were hardly room enough for them to ripen without lying piled up on each other. Paths were provided for the pickers, a foot wide; but these paths were also filled with straw. The Sterling, Cumberland, Gandy, Downing, and Bubach, kept their berries out of the path; but the wonderfully productive Haverland could not be satisfied with piling the berries up in the row, but it just kept pushing its great long stalks full of fruit clear out into the path; and it was very difficult indeed to walk in the paths without stepping on these great beautiful handsome berries. Did anybody ever see such a plant as the Haverland? One reason for wanting to visit friend Terry was, that I wished to see whether his Haverlands were really lying in heaps around the plants, as ours were. They were doing that very thing. Friend T. is not excitable. I never saw him get very much excited about any thing. He is cool and quiet in almost all emergencies. He does not sail his hat nor get as enthusiastic as I do; but for all that he enjoys nature's gifts fully as much as the rest of us, if I am correct. Now, the catalogues have been severely censured for being extravagant in regard to many of these new things; but since I have been home I have searched all the catalogues in vain to find any thing that does *half justice* to the Haverland. It is true, the berries are rather tart, and have not very much flavor compared with some of the others; neither are they as large as some. But the berries are of good size; and with a little sugar they are almost as good as any of them. And, oh my! what an abundance! I have not any figures just now about the amount per square rod; but you will find them in the book. It seems to me that this plant is destined to bring about a new era in strawberry culture. We have had them for two years. The first year we kept our original plants so busy furnishing runners, that we did not get very much fruit. During this last spring I let the old plants go, and they were pretty well covered with grass and weeds; but when they began to set their fruit I was almost alarmed. I could not believe it possible that any plant could ripen the quantity of green berries that lay around them on all sides. But they did do it; and as fast as they turned red they increased in size to such an extent that it seemed almost like popping corn.

The lantern was put away, and we went to bed. I obtained permission to get up at daybreak, and I proposed not to disturb anybody else. The barometer's prediction troubled me a little, and so I was not surprised to hear the patter of the raindrops a little before daylight. The rain let up, however, a little after daylight, and, oh what a beautiful sight met my view! One of friend Terry's hobbies is keeping things

painted. The barn and tool-house and covered barnyard had just been treated to a coat of bright new paint. By the way, this covered barnyard has just been enlarged to about twice its former capacity. But I tell you, it is handy—especially where one has as many tools as friend Terry and I have. Friend T. has a knack of combining colors, with a small amount of architectural curves about the covered yard, that makes it wonderfully pleasing to the eye. The fence before the house was also neatly painted, and in good repair; gates all working nicely. A gravel walk led around to the front door, and a gravel driveway on the other side of the lawn led around to the rear of the house. Friend T. has a gravel bed, or bank, on his own farm, and therefore it is not a very expensive matter to have neat gravel walks all about his home. The painters had also been at work about the house; and when I suggested that most of us would think that it did not really need painting, he remarked that it was *cheaper* to paint *before* buildings really needed it, in the common acceptation of the term; and there we have the same story over and over again all over friend Terry's premises. Every thing is done *before* it begins to suffer from lack of attention. The weeds in the strawberry-bed are killed *before* they get to the top of the ground. His fourteen-acre potato-field is tilled in the same way, even during this remarkably wet season. The potatoes stood so regular through the field that one might think they were spaced by machinery, which, in fact, they were, by the machinery of the potato-planter. Instead of there being hills of potatoes, however, there was a single stalk standing up like a little tree, each one just like its neighbor, as in the strawberries. This comes from the "single-eye" idea. If we let a great lot of sprouts grow in one hill, it is like having eight or ten stalks of *corn* in a hill—you have only nubbins instead of fine large ears. This single potato-stalk produces only a few potatoes; but as these are not crowded at all, they are large, fine-shaped ones; and his potatoes, like his strawberries, command an extra price. Some time last fall I sent friend Terry an order for 25 bushels of potatoes, to be kept for seed. I was too late. They were sold out, and I was astonished to learn during this visit that *280* different people sent money for potatoes, after the potatoes were gone. That is worse than any thing we have done—or *better*, whichever you choose to call it. The receipts for strawberries during the day I was there were something over $23.00.

When I mention about friend Terry's farming, many people reply at once, "Oh, yes! friend Terry has got money, and can afford to hire all the help he needs."

Now, this is a sad mistake. One great feature of Terry's farming is to manage with the very smallest amount of help. If I am correct, he has only one hired man, aside from himself and boy, and the assistance his wife and daughters give in berry-picking. Many people ask, with wonder expressed in their eyes, "Why, do Mr. Terry's *daughters* work outdoors in the strawberry-beds?" Yes, my friend, they do. After they had finished their education, they, like most young ladies, wanted something to do. They might teach school, clerk in the store, or perhaps find a situation in an office in some of our large cities. They preferred to stay at home, however, and work with their father, rather than to be "bossed" by somebody else who is not their father. Do you blame them? Their father suggested that they raise strawberries, instead of teaching school; and I think they are getting more money than most schoolteachers. I did not see them picking strawberries while I was there, because it rained. As they were living at home, and working for their father, they could work when they chose. I looked several times longingly at the beautiful large piano that has recently been purchased, and which stood right in sight; but so many important matters crowded I hardly dared ask them to treat us to some music. Now, I suppose women-folks should be free to choose an occupation, just as men are; but if it were myself, or if it were my daughters under consideration, I should say, "Give me strawberry culture a hundred times over, rather than schoolteaching or any of the other employments open to women-folks." When I mention these rural pursuits, and the wonderful success some have met, the constant objection raised is, that the markets are frequently overstocked. Strawberries a week ago sold in our town at 5 cents a quart. Ours, however, when freshly picked, brought 8 cents readily.

I now wish to relate a little incident illustrating the character and quality of friend Terry's berries. I think it was on Tuesday, June 17, that the quantity of berries became so great that friend T. took a small load to Akron, while his son went to Hudson. He feared there would be more than the town of Hudson could manage. As he approached Akron he met farmers coming home, telling him there was no sort of use in carrying another strawberry to Akron that day. He, however, pushed ahead, but found it all as they said. Stacks of berries were piled up in front of every store and grocery. The troubled proprietors were standing out on the street, trying in vain to get an offer. He drove to the place where he was accustomed to trade, and asked them to look at his berries. This they positively refused to do, saying they were in trouble already because of having been induced to purchase beyond what prudence would dictate. The proprietor, however, finally consented just to look under the cover of the drawers. Friend T. assured him he need not buy, but that he would like to have him *see* some of his product, as he might at some *future* time wish to bring him some berries. He reluctantly approached the spring wagon. Friend T. expected to see him an astonished man when he raised the cover; but he was not prepared for his sudden change. The berries were sold at a price away above those already standing on the sidewalk. When he got home, his son had orders for all the berries they could pick, from the Hudson dealers; and on going to the postoffice he

found a letter from the Akron man, imploring him to bring four bushels Thursday morning, without any possibility of failure. Mr. Terry was obliged to decline the order. There were not berries enough to go around. When I was there, the Gandy had just begun to bear. Friend T. had taken a sample to Hudson, and they brought a *dollar a peck*, without any trouble. No wonder, for they looked like luscious peaches or plums, more than like strawberries. As we stood by the buggy, ready to bid our friends adieu, I ventured the remark, "Friend T., why don't you have 14 acres of strawberries instead of 14 acres of potatoes? They would not be very much more trouble, and then think what a *lot* of money you would have."

He shook his head, and smiled. I don't remember just what he said, but it conveyed an idea to me something like this:

"Fourteen acres of strawberries would make my home a thoroughfare. Its quiet and sanctity would be invaded. My wife and daughters, instead of having this quiet, pretty home all to themselves, would have seclusion and peace no longer. It is true, I might make more money; but I am not working for money. It is not the end and object I have in view. I am a farmer, and I always expect to be one. I love my work because I am enabled by it to demonstrate what farmers' homes may be, compared with what many of them are at the present moment. I want to see farmers' boys and girls find something to do at home on their farms. I want them to love the farmer's home, and to feel proud of it. I want them to find peace, comfort, contentment, where too many of them have found only drudgery, privation, and long hours of toil. I want them to work at home on the farm, and to learn to lay up treasures in heaven, as well as treasures on earth; and I want to show them the buried treasures that lie unused only a little way below the surface of the soil—just below the surface of so many farms, where at present we see only an unsightly and dreary waste of weeds and disorder."

Now, my good friend Terry did not *say* any thing of the sort. He is not as talkative a man as I am, and he did not say very much about it, only that he did not want 14 acres of strawberries, with their attendant care and bustle. In going all over the premises, all over his home, and talking with his wife and children, one was impressed at every step that he is not bent on making money. It seems, however, that the kind Father has provided the money. That little text that has been for so many years a hobby of mine, explains it all: "Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you." So long as friend Terry is working with all his might and main to emancipate the farmer from the drudgery of ordinary farming, God will see to it that he has the wherewith to do his work. Moody once said that *he* believed that God would furnish his ministering servants with the wherewith to carry on their work. I said, as soon as I heard it, "I, too, believe it is true."

Before I left I told my friend that, although there were to be more chapters to the strawberry-book, he could have his pay for what he had done, just as well now as at any other time; and I added something like this:

"Friend T., I have been having many heavy cares and burdens to bear during the past few months; but I am glad to be able to say that lack of funds has not been one of the burdens."

He replied:

"Thank you, Mr. Root; but I do not need it. A lack of funds has not cramped me and troubled me in my work either;" and a pleasant look on his face impressed me with the thought that a spirit of thankfulness to the great Giver above was in his heart as well as mine, and gave an added enjoyment to his work.

We bade adieu to that pleasant home. The surrounding homes for quite a little distance seemed to have caught friend Terry's spirit, for they were well-to-do, progressive farmers; but the potato-fields right over the fence from friend Terry's were as different from his as any thing you could well imagine. Notwithstanding this, they were rather better than any thing we had seen in our drive of 25 miles across the country. I looked in vain on this side of the road and that, but no such farming greeted us anywhere as we saw there.*

We took a different route home. You never see me going the same road twice, if I can avoid it. At Cuyahoga Falls we called on the veteran strawberry-man, Mr. Matthew Crawford. Friend C.'s whole business is strawberries—not raising them for the market, but testing different varieties, and raising plants for sale. I saw something there which I had never seen anywhere else, and perhaps I shall never see it again—little beds of two or three rows, of all the kinds of strawberries known. In some places great luscious berries were rotting on the ground. When I remonstrated, he said so many were coming daily to discuss the different varieties that he left a few so as to be always able, during the season, to furnish specimens of dead-ripe fruit. I mentioned ever so many kinds I had heard of, but I was promptly led to the very variety in question, where I saw it doing its best. Friend Crawford is a devoted, faithful Christian. In fact, it shines forth in his face, looks, words, and actions. As my paper is getting long, I shall be obliged to pass over this visit briefly. As an illustration of our talk I give the following:

"Friend C., will you please show me the largest berry known?"

"With great pleasure, Mr. Root. But do you really think you want to invest in the largest berry known?"

"Why, surely. If it is a good one, why should I not?"

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* *Later.*—Since our visit I have received the following on a postal, from friend Terry:

Well, it dried off Saturday, so we sold 10 bushels of berries, $26.00; and Monday 13 bushels, $36.55. Not quite so thick today, but we got a bushel of Gandy's Prize, that sold for $4.00. I had a photo taken. The Gandy will not hold out long.

Hudson, O., June 24. T. B. TERRY.

"Yes, it is a good one—that is, fairly good. Come and see."

He parted the leaves, and there, to my great astonishment, was an immense fruit that I should hardly have called a strawberry had it not been for the surroundings. Instead of being like other strawberries, it was much the shape of a very badly scalloped tomato; and I declare, the berries were pretty close in size to some tomatoes. I picked a great big one and took a bite. The quality was very much like that of the Bubach; but there was not a single specimen but that was knotty and gnarly, with protuberances growing out of one side or out of another. At first I declared I would make a planting of it; and then it occurred to me that everybody would object, and prefer something a little smaller, of good shape, and firm enough to ship—something like the Gandy, for instance. If one wanted, however, a great lot of berries, and something that could be picked very quickly, I rather think this would be the berry. My companion told me that he had found ten of them that would make a quart, and he thought it very likely that he could do it then and there. As its shape suggested tomatoes, I asked:

"Friend C., why is it not probable that some time we shall have a single strawberry combining so many of the desirable qualities of others that only one variety will be needed—like the tomato, for instance?"

"I have thought of it a good deal, Bro. Root; and, by the way, I am very much rejoiced to know that we have finally one tomato summing up all the good qualities to such an extent that no other is needed. I am myself, at present, planting only one kind of tomato, and it seems now that I may never care to plant another kind."

I almost held my breath as I asked, "Why, friend C., you astonish me. Will you please tell me the name of that one tomato that you put in place of all the long string of tomatoes known to seedsmen and catalogue-makers?"

What do you think he said? He smiled just a little as he replied, "The Ignotum."

I did not at the time know whether he was aware that I first gave it to the public, but he said he had heard it so stated.

"Now, Bro. Root, I have something to tell you that will greatly please and interest you. I do wish you could meet friend Louden, who gave us the great big strawberry you hold in your hand, and he has given us almost numberless other valuable strawberries. You will notice that I have numbered them in different places over my ground—No. 4, No. 8, No. 75, etc. Well, friend L. is a Canadian. Some years ago he was very low with consumption, and his case was pronounced by nearly all the physicians incurable. There was nothing before him but to get ready to die. As he was a good man, his friends could not bear the thought of losing him, and his children could hardly give him up. A son of his was interested in strawberries, and he begged his father to stay outdoors and get interested in berry-growing, suggesting that, if he should get as full of enthusiasm as some of them did, it might make him well." I began at once to think of our good friend Mrs. Axtell. "The father very quietly assented, and placed himself as pupil under the son. In a little time he became deeply interested in the matter of perfecting new varieties. At present he has done more work of this kind than perhaps any other man in the world; and this season," so our friend Crawford went on to say, "he has a whole half-acre covered thickly with plants, and each plant is a different seedling from its neighbor. These are to be tested, with the hope that they may furnish the world something better than we have already." Those who have made experiments in this line can conceive how much of an undertaking is such a project; and the outcome of it has been that he has regained his health, and although he is quite an old man now, he will probably live for some years yet. So you see it is not only *worldly* gifts which shall be given to those who seek first the kingdom of God and his righteousness, but the promise seems to include health; for friend L. has found a new lease of life in propagating new and better varieties of strawberries for his fellow-men. I do not know whether he is rich or not. It may be that, like Terry, he does not *care* to be rich, but holds fast to the text of our talk to-day.

Lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal.—MATT. 6:20.

EDITORIAL.

So is he that layeth up treasure for himself, and is not rich toward God.—LUKE 12:21.

GLEANINGS TEN THOUSAND STRONG.

WE are happy to announce to our readers that we have now on our books 10,000 subscribers, the exact number being 10,002. There is such a call for sample copies that we are now printing nearly 11,000 journals each issue. In fact, we have been doing this right along through the year. While we have been slow in reaching 10,000, we are glad that we have been able to hold our readers. Somehow or other they stick by us, and we hope to stick by them. Advertisers will please take into consideration our large subscription-list. Three thousand is usually a large list for a trades journal; but *ten thousand* is almost phenomenal.

GARDENING IN JULY.

IF you have fine soft mellow ground, well manured and well drained, you can get a good crop of almost any thing, providing your seeds or plants are got right into the ground without a moment's delay. One of our agricultural papers suggests that the 1st of July is generally about the best time to sow buckwheat in any *patriotic* neighborhood. Do you open your eyes and mouth at the latter remark? Well, his explanation is, that the bombardment universally carried on is almost always productive of a thunderstorm; and that, if it does not rain on the 4th, it surely will the next day, and this will give your things a start that will be pretty sure to make a crop.

BUSINESS AT THE HOME OF THE HONEY-BEES, JULY 1.

OUR saw-room reports all orders filled, with the exception of sections; and as we are now running almost all our force on sections, both upstairs and downstairs, still running day and night besides, we hope to be up on sections by about the time this reaches you; and we never mean to be caught in such a predicament again, if our friends will overlook our past delinquencies of the season. We do not mean by this that you are to let us off "scot free." Tell us what the damage has been and we will try to make it satisfactory.

SELLING SECRETS.

IT seems we have not quite finished this matter, judging from the large number of letters coming daily. From among them we select the following:

FRIEND ROOT:—You may remember, perhaps, my telling you, when you honored me with a visit at Niagara, of the influence your writings had had on me. I may say that that influence has not waned; but there is a question concerning the Wilford Hall matter that I should like to have you explain; or, rather, give your views on. I, like yourself, and hundreds of others, through an advertisement in Messiah's Herald, of Boston, and the personal indorsement of the editor, signed the Pledge of Honor, and sent the $4.00; but I was considerably taken back when I read your editorial in GLEANINGS of May 15, characterizing Dr. Hall as a swindler; and I received a further surprise when, in the next issue, you give the whole "secret" (?) away by quoting Dr. Kellogg. Now, what I want to know is this: Have you not violated your pledge by publishing what you did? If so, why am I not at liberty to lend my pamphlet to any of my friends whom I think such treatment would benefit? GEO. CORK.

Waterloo, Ont., June 16.

Thanks, friend C., for the kind compliment you pay me. If I were you, I think I would not show the little pamphlet to my friends, under the circumstances. You can, however, show the copy of GLEANINGS in which I copied from Dr. Kellogg, as much as you choose. Some of the friends still insist that I violated my pledge, and if in no other way by saying to the world that Dr. Hall's secret is the same as what I quoted from the doctor book. Very likely there is some ground for the claim that I have not kept my pledge to the strict letter. Let us try making the matter plainer by an illustration: A man pays you a debt, and you give him a receipt in full. You afterward discover that the money you received from him is counterfeit. Suppose he should still flourish his receipt in full, and claim that he owed you nothing because he had a receipt with your signature at the bottom. In one respect he is right. But you reply: "Look here, my friend, that receipt was given to you with the supposition that the money was genuine. You obtained it by fraud." Property or papers, or any thing else, obtained by fraud or by false pretenses, can be recovered by law. Dr. Hall obtained our signature to that printed promise by false pretenses. Some of the friends go even so far as to say that Dr. Kellogg obtained his information from Dr. Hall, and that Hall is the original discoverer. But even if this were true (but it is not), Dr. Hall has been taking $4.00 for a secret that is not a secret, for it has been for ten years or more published in Kellogg's book. Still others claim that Dr. Hall was the original discoverer of forcing water clear to the small intestine. But those who make this claim have read carelessly my extract from Dr. Kellogg's book—see page 442, June 1, toward the end of the long extract. I have carefully read all your letters, dear friends, and tried hard to find reasonable grounds for calling Hall honest; but the evidence is all before us on *printed pages*.

SUPPLY-DEALERS BEING BEHIND.

MISERY loves company, it is said; and although we regret to hear that other dealers have been behind in filling orders, it is refreshing to learn that we are not the only ones who have had "an unprecedented rush." Messrs. Newman & Son are always prompt in filling orders, if any of the dealers are. The *American Bee Journal*, on page 411, says:

Like all other supply-dealers we have experienced an unprecedented "rush" during this season, and as a result we have not been able to get some lines of goods fast enough to fill orders as promptly as is our custom. We are doing the best we can to satisfy all, and are shipping all the goods we can obtain, the moment they come to hand. We hope to be able to clean up all orders now on hand in a few days, and then to resume our usual promptness, for which we have a widespread reputation.

It is indeed true that they have a "widespread reputation" for promptness. In the next column of the *A. B. J.* we find this pithy editorial on odd sizes, which we are glad to reproduce:

Odd sizes of sections, brood-frames, crates, etc., are simply impossible to get made now during the "rush." If people will use any thing besides the regular stock, they should have them made in the winter, and keep them on hand ready for use when needed. All dealers and manufacturers are now behind with their regular orders, and none will now take an order for a special size; so those who use such, and have not laid in a stock in advance, will have to do without them, and learn a lesson which will cost them more or less of their crop of honey.

Again, we notice that the D. A. Jones Co., of Beeton, Can., have been behind. In their issue of the *Canadian Bee Journal* of June 15, they say:

Orders still crowd us, and we are subjected at times to some pretty harsh letters, when we have been doing our best to get off whatever may have been ordered in each case. Our trade in foundation has been larger this year than ever before, even though some of the other supply-dealers have been selling it at less prices than we. At this moment we have about all the wax bought up which is available, and we fear that our supply is going to be short of our wants, especially if orders come in the way they have been for the past week or two. We have been very much delayed through the sickness of the foreman of our tinshop, but we are having a full force working at the present writing, and we hope to catch up soon. With the exception of one or two nuclei and half a dozen queens, all orders for bees and queens are gone forward.

Yes, we all get "pretty harsh letters," even when we are doing the best we can. Customers should not blame dealers too severely when they are urged by catalogues and otherwise to send in their orders *early*. We all try to do the best we can to anticipate trade; but on account of sickness, mentioned in the editorial above, on account of fires, on account of a good many other things that can not be anticipated, many times it is utterly impossible to ship promptly. The only way out of the difficulty is for *customers* to *anticipate* their needs, and order early.

SPECIAL NOTICES.

NEW HONEY.

We are beginning to have calls for new honey. As soon as you have any choice to sell, we should be pleased to have samples of extracted, with offers; also price on comb honey.

ALFALFA HONEY.

We have in stock perhaps a ton of alfalfa extracted honey, which we have received from Reno, Nevada. Now, the people here at our village pronounce it equal to any clover honey that was ever thrown out of the comb; and in order to show you how nice it is, I would request that, in making freight or express orders, you have a little alfalfa honey put in as a sample. Prices exactly the same as for clover honey in our catalogue.

MAPLE SUGAR.

We have in stock, unsold, about a ton; and in order to get it out of our way we offer it at one cent per pound less than we did in our April issue—7, 8, 9, and 10 cts. per pound, according to quality; ½ ct. less in 50-lb. lots, and one cent less in barrel lots. What we have is mostly of the medium grades, 8 and 9 cts. We have very little of the cheapest grade, and the same in regard to the best.

WIRE NETTING REDUCED TO THE OLD PRICE.

We are pleased to announce to our patrons, that, owing to a reduction in the cost of wire, we are able, after this date, to sell wire netting at the old prices ruling before the advance the first of March. The price, till further notice, will be as given on the last page of our catalogue for Jan. 1, 1890, and later issues; namely, for 2 inch. No. 19, 4 feet wide, $4.00 per roll; 5-roll lots, $3 75; 10-roll lots, $3.60 per roll; 25 cents added for cartage on single roll shipments from New York and Chicago.

14-INCH GLOBE LAWN-MOWER FOR $5.70.

In laying in our stock of mowers for the season we have to judge from sales of previous years what proportion of sizes will be needed. This year has not followed last very closely, and we have had a large call for larger and smaller sizes, so we have had to order more, and we have a surplus of 14-inch on hand. We consider this the best size of the five. However, to reduce this surplus we will, during July only, sell a 14-inch Globe mower for $5.70, which is 25 cents less than regular price.

IGNOTUM TOMATO-PLANTS.

We have finally rather more plants than we shall need this season. We therefore offer them to those who can make a plantirg as late as July, at the following prices: 5 cts. for 10, 40 cts. per 100, or $3.00 per 1000. You can have large plants or small ones, just as you choose; but if you have the large ones, the express charges will be considerably more. Small and medium sizes will be sent by mail at an expense of as much more for postage as the plants cost. We have also fine stalks of celery-plants, which we offer at the same price as the tomato.

IMPORTED QUEENS.

A couple of weeks ago we received a fresh importation of queens from our breeder in Italy. They are extra selected, and we think they are as nice a lot as we ever had. They came through in pretty good shape, and we have decided to offer them just as they come, without testing them as to their honey-gathering qualities, for $5.00 each. The regular price has been $6.00. The bees of all these queens, we feel almost sure, will prove to be very gentle. For some reason or other, the bees of our imported queens are the gentlest we have in the apiary. Let it be understood, that, in ordering these queens, you must not expect any thing golden yellow. The queens are leather-colored, and so are their bees. The progeny of our imported queens average, however, the best of any bees in the apiary. It generally happens that our best honey-queens are among the imported. After we have had an opportunity to grade and test our queens, we shall charge our regular prices, which will be, in July, $6.00, $5.00, and $4.00.

BUSH LIMA BEANS.

This season, like the last, the bush lima beans were slow in coming up; and, worse still, a good many of them never came up at all. This was the case with the first and second plantings. To my great surprise, however, at about the third planting, only about three days later, when we had exceedingly warm, tropical weather, every bean came up as promptly as one could wish. As the first and second plantings grew so poorly I have been putting them in thicker and thicker. They now stand as thick as peas in the rows. Now, was it the hot weather that made them all germinate, or were the seeds in the bottom of the bag a little different? This can hardly be possible, because they were put through a fanning-mill and afterward hand-picked. If those who have had seed that came up badly will apply, we will fill the order again; and if others want to try the bush lima bean planted in July, (they mature as quickly as our quickest white field beans), they may have them for 25 cts. a pint or 40 cts. a quart. If wanted by mail, add 8 cts. per pint or 15 cts. per quart extra for postage.

BEES **SEND** for a free sample copy of the **BEE JOURNAL** — 16-page Weekly at **$1** a year—the oldest, largest, and cheapest Weekly bee-paper. Address **BEE JOURNAL, Chicago, Ill.**
16tfdb
Please mention this paper.

THE CANADIAN

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W.C.G.Peter.*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.
☞Please mention GLEANINGS. 6-11db

AUTOMATIC

SELF-FEEDING

Fountain Pen

We call the attention of our readers to the Bateman fountain pen. We have for a year or two been on the lookout for a good reliable fountain pen at a price within the reach of all, and at last we have it. We have tried in our office a number of different kinds, and finally decided on one which was far ahead of all others. We bought them at a bookstore, and they were careful to withhold the name, so we could not order direct; but we have recently discovered that the pen that proved so reliable, and ahead of all others we had tried, was the "Paul E. Wert" fountain pen. This has been acknowledged by all who have tried different kinds, to be away ahead of all others. The Bateman, which we offer, was first made within the present year, and is almost an exact copy of the Paul E. Wert.

There is one little difference which is claimed to be an improvement. We have thoroughly tested them in comparison with the Wert pen, and consider them fully as good; and, what is of as much interest to you, they cost only half as much. The Wert pen usually retails for $2 50 to $3.00. We sell the Bateman for only $1.25, postpaid, or you can have one free for four new subscribers to GLEANINGS, with your own renewal. A filler and directions for use accompany each pen.

The pens are 14-karat gold, with platinum point, and mounted in a black rubber holder. See cut.

A. I. ROOT, Medina, O.

☞In responding to this advertisement mention GLEANINGS.

TESTED QUEENS CHEAP

During the Swarming Season.

Prolific queens, producing all three-banded workers, $1.00 each. Six for $4 00.

13-14d **J. A. GREEN, Dayton, Ill.**

☞In responding to this advertisement mention GLEANINGS.

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. **THOS. G. NEWMAN & SON,** 246 East Madison Street, - - CHICAGO, ILLS.

☞In responding to this advertisement mention GLEANINGS.

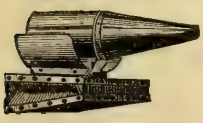
SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2 00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16 tfdb Successors to B. J. Miller & Co., **Nappanee, Ind.**

☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...$2.00
Conqueror "	3 "	"	... 1.75
Large "	2½ "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow ")	2 "	"	... 1 00
Little Wonder,	1¾ "	"	... 65
Uncapping Knife.....			..1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to

4tfdb **CHAS. DADANT & SON, HAMILTON, HANCOCK CO., ILLINOIS.**

☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

Please mention this paper.

ONE-PIECE

SECTIONS

A SPECIALTY.

A. I. Root's style, $3.00 per 1000. Address

B. WALKER & CO., Capac, Mich.,
10tfdb **or Wauzeka, Wis.**

☞In responding to this advertisement mention GLEANINGS.

BRIGHTEST

GOLDEN ITALIAN BEES AND QUEENS,

—AND THE—

REDDEST DRONES IN THE WORLD.

Untested, $1.00 | Tested, $2.00 | Select tested, $3.00
Special breeding, guaranteed to please, $5 00.

L. L. HEARN, - FRENCHVILLE, - - W. VA.
11tfdb Please mention this paper.

SPECIAL CROPS.

A magazine for advanced agriculturists; 25 cts. per year; sample 7 cts. Also, Black Minorcas, B. Leghorns, and S. Wyandottes; eggs of either, per setting, 75 cts.; 26 at one time, $1.00. 4-50d

C. M. GOODSPEED, Skaneateles, N. Y.

☞In responding to this advertisement mention GLEANINGS.

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

9tfdb **OLIVER HOOVER & CO.,**
Mention this paper. **Snydertown, Pa.**

IMPORTED · CARNIOLANS.

We have just received a very fine lot of select imported Carniolan queens. Price $4.00 each, and guaranteed to arrive at your P. O. in good condition. We also have a very fine lot of home-bred Carniolan queens that are ready to ship by return mail. With us 90 per cent have proven to be purely mated. Some parties have condemned the Carniolans, but we are safe in saying that they have never had any pure Carniolans; so the pure Carniolans did not get justice. See what A. I. Root says in GLEANINGS, July 1st, regarding pure Carniolans. Give them a fair trial, and you will find that they have qualities superior to any other race of bees. One untested queen, $1.00; six, $4.50; twelve, $8.00. For further particulars write for free circular and price list to

F. A. LOCKHART & CO., Pattens Mills, N. Y.

LOOK! Italian Queens, 20 to 75c Tested, 75c; untested, 45; mismated, 20c. My queens are as good as any in every particular. I am requeening one of my apiaries to five-banded golden Italians. Safely delivered by

F. C. MORROW, Wallaceburg, Ark.

ITALIAN QUEENS FOR SALE.

Tested, reared in August, 1889, 75 cts., clipped; untested, 65 cts.; hybrids, 25 cts.

G. L. JONES, Grand Ridge, Illinois.

PURE ITALIAN QUEENS.

Tested queens, $1.00 each; untested queens, 70c each; 3 for $2.00. All queens bred from select imported and home-bred queens. Safe arrival guaranteed.

D. G. EDMISTON,
14tfdb **Adrian, Lenawee Co., Mich.**

BEES **SEND** for a free sample copy of the BEE JOURNAL — 16-page Weekly at $1 a year—the oldest, largest, and cheapest Weekly bee-paper. Address
16tfdb **BEE JOURNAL, Chicago, Ill.**

Please mention this paper.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Having a few colonies of hybrids to Italianize, we offer for sale 12 or 14 mismated queens for 50c each until sold. Some of the queens produce almost three-banded bees, and their progeny are almost pure Italians. T. L. THOMPSON, Blairsville, Pa.

FOR SALE.—25 nice, large, laying hybrid queens at 25c each. Send at once if you want nice ones.

F. H. PETTS, Warsaw, Mo.

We have about 70 Carniolan queens (in an outapiary) that have mated with Italian drones. We offer them at the following prices: 50c each, or $5.00 per doz. The above queens are large and prolific, and are only one year old. Reason for selling above queens is, we are going to change to all pure Carniolans. F. A. LOCKHART & CO.,

Pattens Mills, N. Y.

A few young hybrid queens for sale at 30c each, buyer to send provisioned cage.

JOHN GINTER, Pleasant Home, Ohio.

Hybrid queens wanted, but do not send them until you write to and hear from

O. R. COE, Windham, Greene Co., N. Y.

Hybrid queens, 30c; mismated Italian queens, 40c; all young, and very prolific.

B. DAVIDSON, Uxbridge, Ontario, Can.

Mismated Italian queens for sale at 25c each.

MRS. A. A. SIMPSON, Swarts, Greene Co., Pa.

Mismated queens, 20c each. No more 10c hybrids.

F. C. MORROW, Wallaceburg, Ark.

Ten very fine hybrid queens for sale at 25c each; 5 for $1.00. G. L. JONES, Grand Ridge, Ill.

1890 **FINE ITALIAN QUEENS, FROM** bees for business; untested, each 75 cts.; six, $4.00. Order now, pay when queens arrive. 13-16db W. H. LAWS, Lavaca, Ark.

CHENANGO VALLEY APIARY

Fills orders now, and sends out by return mail, Beautiful Yellow Italian Queens. Untested, $1.00. Tested, $1.25. Send for circular. 14tfdb

MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

☞In responding to this advertisement mention GLEANINGS.

GOLDEN ITALIANS.

Warranted to produce 3 banded workers, and safe arrival guaranteed. I can fill all orders for less than one dozen by return mail if desired, price 75c each. Look at my ad. in June Nos. of GLEANINGS. Address JAMES WOOD, North Prescott, Mass. 11tfdb

☞In responding to this advertisement mention GLEANINGS.

FOR SALE. My supply business, shop building, and tools, with 70 colonies of bees. Want to sell at once. Low price and easy terms. Must be disposed of before Dec. 1st, 1890. Address 14-15-16d JAS. A. NELSON, Muncie, Wy. Co., Kan.

☞In responding to this advertisement mention GLEANINGS.

LOOK! Tested Italian queens, $1.25 each; untested, 80 cts.

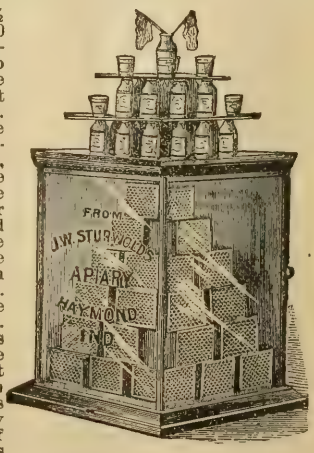
MRS. A. M. KNEELAND (nee Taylor),
Box 77. Mulberry Grove, Bond Co., Ill.

EVERBEARING STRAWBERRY. Descriptive price list free.

SETH WINQUIST, Russellville, Oregon.

Sturwold's Show-Case

FOR THE PROTECTION AND DISPLAY OF HONEY.



This case is 2½ feet high and 20 in. square, outside measure, top and bottom. The glass of which it is made is 16x26. The case is to be set up in any grocery, drug-store, or any other place of business where you wish your honey exhibited or sold. These show-cases are shipped from here. Price $4.00. With your name and address, $4.50. As the glass is very apt to be broken in transit we will ship them with the glass boxed separately at same price, if you prefer. As the cases are put together with glue we can not sell them in the flat.

A. I. ROOT, Medina, O.

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HONEY COLUMN.

CITY MARKETS.

COLUMBUS.—*Honey.*—Honey scarce, and selling at 17c for choice white clover. Twelve or fifteen hundred pounds would meet with ready sale.
July 8. EARLE CLICKENGER, Columbus, O.

CHICAGO.—*Honey.*—Market is bare of honey of all kinds, both comb and extracted. New comb will bring 13c. A little fancy has been sold at 15c. Extracted from 6@8. Weather warm but there is some demand, and consignments would sell.
July 8. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—New Southern strained arriving freely. Quality poor, and prices declining. We quote from 60@65c per gallon. New extracted, orange blossom, 7@7½. New California, white sage, 6@6½. California light amber, 5½@5½.
Beeswax.—Scarce and firm at 29@30.
July 7. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

CINCINNATI.—*Honey.*—Demand is good for new crop extracted and comb honey. Judging by present arrivals, there has been a good crop harvested. Extracted honey brings 5@8c on arrival. Comb honey 12@15 in the jobbing way, for best white. *Beeswax.*—There is a good home demand at 24@26c on arrival. CHAS. F. MUTH & SON,
July 9. Cincinnati, O.

DETROIT.—*Honey.*—No new honey in the market, and no desirable old left; it is quoted at 10@13c. Extracted, 7@8c.—*Beeswax* wanted at 27@28c.
Bell Branch, Mich., July 8. M. H. HUNT.

ST. LOUIS.—*Honey.*—Trade quiet at unchanged prices. D. G. TUTT GROCER CO.,
July 9. St. Louis, Mo.

NEW YORK.—*Honey.*—Market is unsettled, it being now between seasons. We quote common Southern, strained, at 60@65c per gal. New California extracted, 6@6½c per lb.; new Cal. comb, 11@12. *Beeswax*, scarce, 27@28.
F. G. STROHMEYER & CO.,
July 9. New York.

BOSTON.—*Honey.*—No change in honey or beeswax. BLAKE & RIPLEY,
July 9. 57 Chatham St., Boston, Mass.

FOR SALE.—2000 lbs. very fine extracted honey; also 2000 section honey, all white clover.
G. L. JONES, Grand Ridge, Ill.

WANTED.—I shall need thirty or forty thousand lbs. of comb and extracted honey this coming fall. Give particulars as to quality, kind, and price.
J. A. BUCHANAN, Holliday's Cove, W. Va.

QUEENS from imported mother; untested, 75c; tested, $1.25: three-frame nucleus, with queen, $3.00. Safe arrival guaranteed. 13-14d
THOMAS & KISSEL, Horatio, Darke Co., Ohio.

Yellow Carniolans.

I have a new strain of bees. They are Yellow Carniolans. Queens are large and extra prolific. Worker bees show three yellow bands; are very gentle and the best honey-gatherers. One queen mailed (safe arrival guaranteed) on receipt of one dollar. Those who are looking for a new strain of bees should try the Yellow-banded Carniolans.
14-15d H. ALLEY, WENHAM, MASS.
☞In responding to this advertisement mention GLEANINGS.

Now Ready to Ship

Full colonies of pure Italian bees, with tested queen, in A. I. Root's Simplicity hive, only $4.00 each. Every thing first-class. Pure Poland China pigs, eligible to Ohio record, from $5 to $12 per pair. Safe delivery guaranteed. I shall do by all as I would be done by. N. A. KNAPP,
13tfdb Rochester, Lorain Co., Ohio.
☞In responding to this advertisement mention GLEANINGS.

Rheumatism * Bees.

No doubt the best bees for curing rheumatism are pure-bred Italians that prove to be good workers and work on red clover.
We have such if you want good stock to work with and to secure you plenty of honey.

Tested queens in May,	- $1.50;	in June, -	$1.25
Unt'd " " "	- - 1.00;	3 for - -	2.50
" " " June,	- 75;	3 for -	2.00

For wholesale prices, nuclei, lbs. of bees, and all kinds of bee-supplies, write for our 16 p. circular.
9tfdb **JNO. NEBEL & SON, High Hill, Mo.**
Mention this paper.

16 COLONIES in 10-frame L. hive at $3.00 each, or the lot for $40. P. H. FELLOWS, Broadhead, Wis.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange Italian bees in portico L. hives for a good set of tinner's tools.
13tfdb J. A. BUCKLEW, Warsaw, Ohio.

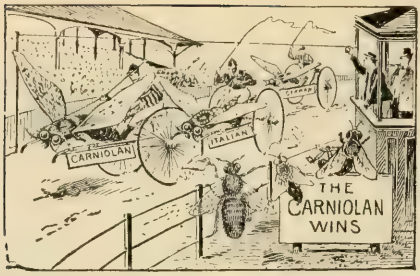
WANTED.—To exchange a 14-inch Foundation-mill, good as new, with dipping tanks and boards, for beeswax, tin plate, metal rabbets, T tins, or offers. A. A. WEAVER, Warrensburg, Mo.
13-14d

WANTED. — Second - hand foundation machine. Give description and price. J. F. MICHAEL,
13-14-15d German, O.

WANTED.—To exchange fine young Carniolan queens, for foundation, or supplies, or other offers. F. A. LOCKHART, Pattens Mills, N. Y.

WANTED.—1000 lbs. of nice white clover bees' honey, in 1-lb. sections. Will pay cash, or exchange supplies for the apiary. Address with price, A. D. ELLINGWOOD, Milan, N. H.
14-15d

WANTED.—To exchange one 1¼ in. single express harness, 1 saddle, for shotgun, incubator, thorough bred poultry hand garden cultivator, or offers. A. F. AMES, Tamasoa, Perry Co., Ill. 14d



Hurrah for the Carniolans! They take the lead; win the race; secure the prize. If you want

TONS OF HONEY,

Try the Carniolans. Hardiest to winter; pleasantest to handle; best honey-gatherers. Our stock is the best that can be procured, and is bred miles away from other races.

Prices: One untested queen, $1.00; 6 for $5.00; 12 for $9 00. One tested queen, $2.50. One imported queen, $3.50. *The Bee-Keepers' Advance* and an untested queen, for $1.25.

J. B. MASON, Mechanic Falls, Me.

☞In responding to this advertisement mention GLEANINGS.

Golden Yellow Italians and Albino Queens

That will give perfect satisfaction. Tested, $1.25. Select tested, $1.50. Untested, 75 cts. from now until October. I guarantee safe delivery. Sold this year 113 queens. J. W. TAYLOR,
13-15db Ozan, Hempstead Co., Ark.

In writing advertisers please mention this paper.

FOR SALE.—An apiary of 125 colonies of Italian bees, together with fixtures and honey crop, if bought soon. I will also sell my place, good house and out-buildings, and 8½ acres of land.
L. WERNER, Edwardsville, Ill.

CARNIOLAN APIARY FOR SALE!

My Carniolan apiary must be sold at once, to allow me to move to Colorado Springs.

"You have the best Carniolans in the country."
H. ALLEY.

Select imported queen, $5; untested queen, $1; untested, ½ doz., $5; tested queen, $4; 1 lb. bees, $1; 3-frame nucleus, $2 00; full colonies, in 1-story Simplicity 9-frame hive, $5; add price of queen you want. Ten per cent discount on all orders of $20.00 or over. Large stock of all ready to ship at once. Queens by mail, others on board cars here by freight or express, as ordered. Remittance of currency, bank draft, or money order must accompany all orders.

Will sell my whole apiary and implements, and give immediate possession. House and grounds also for rent.

S. W. MORRISON, M. D.,
12tfdb **Oxford, Chester Co., Pa.**

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Queens by Return Mail.

Untested (Italians)	$1 00
Tested	1 50
Select tested	3 00
Untested honey queen	1 25
Tested honey queen	1 88
Select tested honey queen	3 75

Bees and brood at the same rates. See our catalogue, free on application.

A. I. ROOT, Medina, Ohio.

TESTED CARNIOLAN QUEENS, $2.50 each; untested, $1, or 6 for $5. Send for price list of Italian bees and queens, bred in my Nappanee apiary. 8tfdb I. R. GOOD, Vawter Park, Ind.

Italian Honey Queens.

Tested, $1 50; untested, 90c. A limited number extra select tested, $2 00 each.

R. W. TURNER, Medina, Ohio.

In writing to advertisers please mention this paper.

CHAFF AND SIMPLICITY HIVES shipped on receipt of order. Price list free.
11tfdb E. J. SHAY, Thornton, Taylor Co., W. Va.

Italian Queens Cheap. TESTED, $1 50. UNTESTED, 75c.
13-14-15d A. R. YOUNG, Rossie, St. Law. Co., N. Y.

THE "REVIEW."

SOME OF THE TOPICS IT HAS DISCUSSED.

"The Production of Comb Honey," was the special topic of the April number.

"How to Raise Extracted Honey," was discussed in the May issue.

"Comforts and Conveniences for the Apiary," were named and described in June.

"From the Hive to the Honey Market," was the topic of the July issue.

"Marketing," Will be the Special topic of the August number.

The "Review" is Published monthly, at 50 cts. a year. Send for samples (free) and see if you can afford to be without it.

Address Bee-Keepers' Review,
W. Z. HUTCHINSON, Ed. & Prop. Flint, Mich.

☞In responding to this advertisement mention GLEANINGS.

QUEENS and SUPPLIES.

Untested Italian queens, each.....$1.00
Tested..... 2.00

Send for price list of bees and supplies.

Address **F. W. LAMM,**
(Box 106.) **Somerville, Butler Co., Ohio.**

Please mention this paper.

Ah THERE! One untested Italian queen, 75c; three for $2.00; tested, $1.50. One untested Carniolan queen, $1.00; three for $2.50; tested, $2. Bees by the pound and nucleus. Send for price list. Reference—First National Bank.
10tfdb H. G. FRAME, North Manchester, Ind.

Please mention this paper.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
5tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.

☞In responding to this advertisement mention GLEANINGS.

FOLDING PAPER BOXES.

CRAWFORD'S SECTION CARTONS ARE THE BEST.

Send for free sample and price list, and find out the reason. A certain fact has come to our knowledge that is worth dollars to *you*. Send for it.

A. O. CRAWFORD, S. Weymouth, Mass.

12tfdb Please mention this paper.

THE BRIGHTEST

Five-banded, golden Italian Bees and Queens, and the **Reddest Drones.** Very gentle; very prolific; good honey-gatherers—working on red clover—and the **Most Beautiful** bees in existence! Took 1st premium at Michigan State Fair, in 1889. Reference, as to purity of stock, Editor of *Review*. Sample of bees, five cents. Untested queens, $1.00. 6 for $5.00. Tested (*at least* 3 bands), $3.00; selected, tested (four bands), $5.00; breeding queens (4 to 5 bands), $7.00. Virgin queens, 50 cents; 5 for $2.00. Safe arrival and satisfaction guaranteed.

JACOB T. TIMPE,
8-15db **Grand Ledge, Mich.**

☞In responding to this advertisement mention GLEANINGS.

Vol. XVIII. **JULY 15, 1890.** **No. 14.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

SELLING HONEY.

ANOTHER COMMISSION MAN'S EXPERIENCE; GRADING; THE PROPER SIZE OF PACKAGE; DARK HONEY NOT UNSALABLE.

IN GLEANINGS for June 15 I was surprised to see that your correspondent, Chas. F. Muth, with his experience in selling honey, advocates the use of small-size (one dozen combs) shipping-crates. We think they are the worst style of honey package that comes to market, and rarely see an invoice arrive in good order. They are undoubtedly intended to be sold to family trade by the case, but that is a failure; for families who seek to buy their supplies in a wholesale way, although good economists naturally, are not liberal-minded enough to accord anybody much profit. Hence their "penny wise pound foolish" way of oftentimes overstocking themselves, and thereby satiating their appetite for honey, and consequently they do not use nearly as much in a season as they would if bought along as they wanted it by the combs, affording the retailer or dispenser a small (due him) profit.

The reason this small-size packing-case is so generally out of condition is, freight handlers, express agents, etc., handle them so carelessly, pitching them about (play-ball fashion), where, if double the weight, they would not do so.

The double-deck case is a mistake, and ought never to be used. The flat and nearly square case being too wide and too much like a flagstone to handle, is not desirable.

Our experience and observation is, that the best packing-case for comb honey is a case holding from 25 to 30 combs one (tier) to be about 24 in. long and 10 in. wide, height of one comb. This size of packing-case can be loaded on the truck, and handled by one man where the square flat case can not be. Although no honey should be trucked, freight-handlers and uninterested humanity generally take the easiest way, and it is difficult to always prevent them; hence we believe in packages that will best stand their carelessness.

Screwing on covers is a mistake, as screw-drivers are not always at hand, while jack-knives are more plentiful, and will open a nailed-on cover much quicker and safer.

Our advice is, put your comb honey up in thin ¾-pound sections, being longer one way than the other, and to make the most show for the amount of honey. It is done in all articles of merchandise, and is due the article itself.

The best package for the honey-producer to put his extracted honey in is 60-lb. tin and 150-lb. pine fish-kegs, being the cheapest, and answering every purpose. The retailer prefers buying in bulk and selling in any amount his customers may want. The bottler and peddler prefer to buy in bulk and put up in their own peculiar or pet style of package. So much for the style of package that honey should be marketed in.

But we should be very sorry if Mr. Muth's idea about buckwheat or dark honey should prevail, for the sale of dark honey is many times greater, especially here in the East, than clover or any light honey, simply because it sells at a price that the masses can pay. Of course, if clover or any light honey could be sold at the same price as buckwheat, dark, or mixed honey, would be as much sold; but I doubt whether much more, for the masses are not connoisseurs or epicures generally, and the dark honey is heavier bodied, goes further, and generally does not have as rank a bee flavor as light honey.

Right here the thought suggests itself, that the less different names given to honey the better, for

they are confusing to those who are not up in bee culture any better than myself. All light honey is known as clover honey, and all dark or mixed honey as buckwheat honey, and that is enough, commercially. If honey goes on the market as clover, buckwheat, basswood, goldenrod, etc., and on that line finally the name of every weed and flower that a bee gets any honey from, it will cause a useless confusion in trade, and interfere with a free consumption; for when one wants to buy honey, if he can't find some certain flower, honey that some enthusiastic wise bee keeper has told him his last light honey was made from, he won't buy.

Concerning extracted honey, I think the dark honey has the advantage, for it has no season, but sells the year through for about the same price; while to get the price that light extracted honey commands, it has to be sold early before cold weather, hence its selling season is much shorter; and if kept over that season it depreciates in price more than the dark extracted honey. I have no inventions in the honey line. I am writing this only for the good of the honey trade, if there is any good in it. If a uniform style of package could be adopted, so that the much-despised middleman could depend upon receiving it so he could duplicate his orders at all times with the same style of package, the consumption of honey would increase many fold. H. R. WRIGHT.

Albany, N. Y., June 25.

Friend W., I know you have for years been remarkably successful in disposing of dark *comb* honey; but I did not know before that you had succeeded in finding a market for dark *liquid* honey. We are very glad indeed to know it; and it illustrates once more the fact that people buy and use many things when they once get into a notion of doing so. In our vicinity they have got into a notion that honey must be white, and therefore they will not even taste of any thing else—at least a great majority of them.

SHIPPING AND SELLING HONEY ON COMMISSION.

SUGGESTIONS FROM A COMMISSION MAN.

Mr. Root:—I was induced to go into the receiving of comb honey for this market last August, by a man of wide experience in that line. Of course, he was allowed to write and solicit consignments, and all he did say on paper I do not know, as I kept no copy then of the letters as I do now. Well, on came the honey from different sources. It was very gratifying to know that the man was well known among bee-keepers, having been in business quite a while before. Just about the time the honey came in and should have been sold and put upon the market, he got into some difficulty that detained him from active work for me or *us*, and then the whole thing of making a new trade and a new market fell to my lot; and although not successful as to obtaining the prices the shipper wanted, owing to the bad season for honey, we managed to dispose of about 30,000 lbs. of comb honey and 60,000 of extracted honey, at prices, for comb honey, 9 to 12 cts., for dark and buckwheat; 12 to 13 for number 2 clover and basswood, and 14 to 16 for fancy No. 1 clover; paper boxes, 1 cent more, and the extracted 5½ to 7 for buckwheat, fall flower, and dark; and 6½ to 7 for mixed and for basswood; and No. 1 white, 7 to 7½ and sometimes 8 cents. Of course, we charged 5 per cent commission on extracted and 10 per cent on comb honey; charge no interest, insurance, or storage, but merely take off the freight and cartage or expressage; and with all that we have men ship us who are not satisfied, and make all sorts of threats of what they will do about publishing us before the convention held by bee-keepers, etc., so that I will not get (they say) any one to ship to me. Now, I do want to ask you if the few men who have written me thus are a fair type of bee-men or honey-shippers. If so, I hope they will be judicious enough not to place themselves in a position to be answerable to the law for defaming the name or the man's business.

I will now give you some points in my experience that have a tendency to ruin a market on comb honey, so that it is impossible to get fair prices for it; for instance: Last fall, nearly every commission house that handles produce or vegetables had several small consignments of honey, and they sold it at what they could get for it, and especially if some of it came in a leaky condition; instead of fixing it up and getting at the actual loss and selling the rest at a price to sustain the market, they let it go at any thing to get rid of the "sticky stuff," and the sharper who bought it does what the receiver should do, and he who sells it to the consumer at so low a price that the honest handler says, "I can not get honey to sell at that, hence I am off." Now, as a remedy, every shipper of honey should write to any large city and find out whether there was or is a honey-house there, or a man who makes a specialty of handling honey in all shapes, and correspond with him about their productions, and in that way his honey goes to one party, and the wholesale trade know where headquarters for it is, or should be, and there they go to get it, good, bad, or indifferent, and prices for all kinds and styles, and much better prices could be obtained and much more satisfactory all around.

I should like to speak about a few things in regard to honey being broken in the case. We can not recover from the railroad company every time, as the companies receive it only at owner's risk of breakage; and if it comes in a leaky condition they say they are not responsible for it, unless it should be smashed in transit by a wreck, or packages broken to pieces in transit. E. J. WALKER.

Philadelphia, Pa., March 14.

Be not weary in well doing, friend W. You know the rest of the text. Do your duty well and faithfully before the great Father above, and you will surely find your reward. Faithful, honest, conscientious commission men are always in big demand. In regard to shipping at the owner's risk, I think if I were shipping honey I should prefer a higher rate, and have it go at the railroad company's risk.

SPACING BROOD-COMBS.

IS IT $1\frac{3}{8}$, $1\frac{7}{16}$, OR $1\frac{1}{2}$?

AFTER reading GLEANINGS, pp. 490—2, where the points are so ably brought out on both sides, I would not even need to make a comment were it not that the subject is one of more than ordinary importance. I wish I could feel that I fully deserve

the compliment Bro. Doolittle pays to my style of writing; but the fact is, that, in so many things, as in the present case, I am so ignorant of just where the truth lies, that I dare not be very positive. I sometimes say, "There are a few things I know all about, but bee-keeping isn't one of them." But about that distance. I wish we could have a series of very full tests of what bees themselves would do under different spacings. I don't think I believe in following nature quite as much as Bro. Doolittle—we kill off most of our roosters, and cut out drone comb—still, when there is no special reason on the other side, nature is a pretty safe guide, and nature and Doolittle together make a strong team. I never thought of the cappings in measuring, and who but Doolittle would have thought of measuring them as he did? The question the hardest to be decided is, how much space is needed between combs to allow bees enough to get up the requisite heat in the spring? As suggested, the changing-about of frames makes more room necessary than if each comb always remained in the same place. But, say: With the Keeney method of wiring, or, perhaps better, with Hatch's plan of leaving out one diagonal, we can have the septum of the comb exactly in the middle of each frame; and then if spaced at fixed distances each comb will exactly fit wherever it is put, except where bulged with honey. That 1½ of nature is hard to get over. But doesn't nature make allowance for corrugated combs and for drone comb? I just measured a piece of new drone brood sealed, and it was 1⅜ in thickness. I didn't suppose it was so thick. Is it all so thick? For such comb 1½ would seem close spacing.

What has now been brought out by Doolittle's article leaves the matter in somewhat clearer light, and we have these data: Sealed comb is at least one inch thick, and workers stand $\frac{3}{16}$ high on it. Allowing the workers to stand back to back makes two layers of bees ⅜, making 1⅜ necessary if spacing is exact and the bees just touch. But spacing is not exact, and the bees should not be allowed to rub the feathers off their backs, so it seems a little more than 1⅜ is needed. Nature has 1½, so no more than 1½ is needed; and as that allows corrugations and drone comb, neither of which we want, we can get along with a little less. Now, Bros. Doolittle and Root, you have made the matter clear enough so that for the present I'm going to settle down on $1\frac{7}{16}$ till somebody comes along and knocks me off from it. I'm rather sorry for it, because all my plans are made for 1⅜. All the same, I thank you for the light you have given.

After I had written the above I read it over at the breakfast-table, when my assistant said, in a rather vehement manner, "I don't care, I'm with Ernest; 1⅜ is all right, nature or no nature. Look at the nice frames of brood we have with 1⅜ spacing, filled clear to the top-bar, instead of having a big margin of honey all around." And then she took a big bite of bread to emphasize her position. I tried to make a compromise something after this fashion: "Yes, I think there is something in that, and our present spacing makes it much easier to get out the dummy. I don't suppose it makes much difference in hot weather whether the spacing is too wide or too close, so for convenience in handling we'll let the frames remain as they are; but when it comes to the last spacing of the season we'll put the dummy close to the side of the hive or take it out altogether, and leave $1\frac{7}{16}$ through the winter and spring."

GETTING BEES STARTED IN SECTIONS.

In reply to your question, friend Root, on page 493, I may have had bees "that cram the brood-nest and leave the sections untouched," but I have not observed it. If you ever again find such a colony, try it with a good bait section; and if they leave it untouched, please report it. I think the very best bait is a section partly filled, taken bees and all from a hive where the bees are at work in the super. That idea I got from you, but ordinarily the empty comb answers every purpose.

BEES FILLING OLD SECTIONS.

By the way, I've watched pretty closely about the bees finishing these baits; and although up to July 3d no sections are entirely finished, the sealing is in all cases more advanced on the baits; and if I ever find a case in which the empty foundation is finished before the bait, I promise to report it. You can now go to super after super, and find sealing commenced on the bait, but on no other section.

Marengo, Ill., July 3. C. C. MILLER.

Very likely, friend M., you have no trouble with bees that won't work in sections, so long as you make it your invariable custom to use the baits; and right here is a pretty good hint for some of the rest of us.

THE DIAMOND RATTLESNAKE.

PROF. COOK IS HAPPY IN THE POSSESSION OF A LOT OF POISONOUS RATTLESNAKES.

Dear Friend Root:—I wish I could invite all the readers of GLEANINGS into my laboratory and show them our beautiful rattlesnake. It comes from Mr. S. A. Preston, Burnet, Texas; and considering its long journey it is very agile and sprightly. It is very handsome. The colors are a rich brown, and the light diamond-shaped spots on the back are very beautiful. He brought his rattle-box all the way from Texas with him, but refuses to shake it either for his own or others' amusement (?). Perhaps he mourns for the (?) he left behind him, and so he has no heart for amusement. His appetite also seems to be wanting, for he refuses to eat even frogs, with the delicate hind legs that are so coveted by epicures. Possibly he will break his fast after a night's rest.

And just now a telephone dispatch says I have another rattlesnake at the express office, from W. H. Rempfer, Swales, Pa. I shall have him in the cage with the other very soon. We shall be glad to learn how the rattlers of Texas and Pennsylvania take to each other. Heigh-ho! Another reader of GLEANINGS from Louisiana sends a third rattlesnake. I shall put them all in the box together, and will report later to the readers of GLEANINGS how they behave. I can give a very interesting paper on these terrible reptiles, which I will do for your readers as soon as I have had a chance to become better acquainted with these new arrivals. Now for a good large live copperhead and moccasin. Who will send them? I want the finest cage of poisonous snakes in America. Thanks to GLEANINGS and its readers for the prospect.

THE HELLGRAMMITE.

Mr. C. F. Thomas wishes me to report on a large lace-wing which he has sent to me. The lowest order of insects is the neuroptera, or lace-wings.

They are so called because of the numerous veins and cross-veins to their wings. Thus their wings resemble gauze or lace. I hardly need say that the dragon flies, or darning-needles—the bee-hawks of the South—and the day-flies, which often gather about the street-lamps in our lake cities, like Toledo and Cleveland, belong to this great order. Many of these insects, while larvæ, live in the water and feed on the small aquatic animals that keep them company in their watery homes. Nearly all lace-wings are predaceous, and feed wholly on other insects, and so are to be classed among our beneficial insects.

The hellgrammite (*corydalus cornutus*) is our largest lace-wing. It is four inches long and six inches from tip to tip of wings when they are expanded. The specific name, *cornutus*, comes from the jaws, which are developed into two long horn-like organs which strongly remind one of the tusks of the elephant. The larvæ is a long flat insect, with strong jaws, and lives in the water. We often catch them in the Cedar River, which flows through our college farm. The insect pupates under some board or stone at the water's edge. I do not know the origin of the common name, hellgrammite, but think the alarming appearance of the fly and the larvæ might have suggested it. Terrible as the insect looks, it is entirely harmless, and no one need fear it in the least.

ANOTHER HERMAPHRODITE.

Mr. Timpe has sent me another hermaphrodite. This one is really a drone, as it has the male organs. Its head is really drone, though the antennæ, in number of joints, are like those of the worker. The legs on one side are like those of the drone, while those on the other are like those of the worker. As I understand, this bee is from the same queen as the other one sent a few days since. I think this is a very interesting matter. I believe there are some very interesting scientific inquiries that these hermaphrodites may answer. I should take it as a great favor if any bee-keeper who may discover such bees would send them to me. I wish to make a thorough study of the whole question.

Agricultural College, Mich., July 2. A. J. COOK.

EDITORS ANSWERING QUESTIONS, &c.

UNNECESSARY AND FOOLISH QUESTIONS.

THE more care I devote to the perusal of your papers (A B C and GLEANINGS), the more I feel convinced that my last letter was even *too* weak in regard to the honor due you as a writer and editor. Your way of writing is exactly what most bee-keepers need—plain, yet solid information—saying much in few words. Oh how it amuses me to find, from time to time, that some are questioning you on subjects which you have so clearly answered long ago. Good heavens! what patience an editor must have! This reminds me of something that happened at our late State Farmers' Institute, at Chrisney, Ind., last February. I was asked to give a lecture on the farmer's home. It was very well received. The second day, a professor of Perdue University had a very instructive lecture on crop rotation. He spoke exceedingly well, with a voice clear and well adapted to the locality. After the lecture was given, the gentleman asked if any one among the audience would like to ask some questions. A bright-looking man arose and asked, "Do I understand the speaker to say that we should plant wheat every year on the same piece of ground?" Holy Moses! I could have kicked myself. I said to myself, "If my lecture of last evening, on the farmer's home, was as well understood as the lecture of Prof. N. N. on crop rotation, then God help us."

When—yes, when—will our people begin to study and think just a little more than they do? Again and again you are asked how bees should be handled; how the frames must be spaced; how to secure a good crop of honey, etc. Does it not require more than ordinary meekness to stand all this? I can only admire men who possess such virtue and act accordingly.

THE HEAVY TOP-BAR A GOOD THING.

It gives me a great deal of satisfaction to find that a heavy top-bar frame is asked for by the fraternity. I have used them since 1883; also a friend of mine, Mr. J. B. Mueller, principal teacher at Ferdinand, Ind., has used them since that time. We used them alternately—one with a deep top-bar and the next one a Simplicity frame with metal corners. Sections can be placed on thick top-bar frames without any sagging whatever. Bees will place less wax on top of these frames, even if no quilt is used for a time. Yet I fear that all will not hold good for what certain writers claim for them. Combs rest firmer in these frames, and wire is not needed to keep the foundation in shape, or to keep comb from breaking. Such frames are more durable and more stable, if placed in the hive. But an active queen will get upstairs and have things all her own way, as you say, in spite of these thick-topped frames. Even to a third story will her majesty ascend, and see that all her subjects are doing their work. This is our experience. By all means, staples should rest in either end of the frame, else the proprietor will kill more bees than in handling the thin-top-bar frame. This is not paying to any one unless he cares to possess a good many stingless bees besides the dead ones.

A DOUBLE-WALLED SIMPLICITY.

I should like to draw your attention to a double-sided Simplicity hive. Make a second hive that will exactly cover the Simplicity hive, allowing only tar-paper space. Nail or screw together, and you have a hive next to a chaff hive. I consider this the best hive, in very cold as well as in very hot weather. I have the idea of this hive from one my father, Hon. J. C. Stenger, used for 28 years. In all these many years this same hive stands on a limestone rock, and never have the bees suffered in this hive. They swarm less from that hive; and in regard to comb honey, it has been the "boss" for 28 years. These, certainly, are convincing facts in favor of a double-walled Simplicity hive. Give your opinion on this subject.

THE TOBACCO DEVIL MORE HARM THAN KING ALCOHOL.

In conclusion, I say this much to you: That in fighting the tobacco devil you have a friend and helper in the writer of these lines. Tobacco does even *more* harm than the heavy drinks, and they do harm enough in this world of ours.

[REV.] STEPHEN STENGER.

St. Meinrads, Ind., June 24, 1890.

Thanks, friend S., for your kind words. But we do not have very many foolish questions—certainly none as bad as the one you mention. It does, however, sometimes seem positively awful to find how people

will get hold of things when one it trying hard to make them plain. Notwithstanding, let us not discourage people from asking questions—let them come. Hives made double walled, with tarred paper between, have been a long while in use. Our experience is, that they do not dry out as well as the chaff hive; that is, they are more likely to be damp and moldy inside during a spell of damp weather.

TAKING QUEEN-CELLS AWAY FROM THE BEES, ETC.

DOES SHAKING COMBS INJURE THE EMBRYO QUEEN ?

A correspondent wishes to know "if it will answer to shake the bees off the frame of brood having queen-cells upon it, if it is wished to save the cells for use." No—not by any means. Very many have been the number of queens killed or injured for all time by this plan of getting the bees off the cells. If the cells are only just capped over, such shaking dislodges the royal larva from the royal jelly, throwing the larva to the bottom with such force that it is either killed outright, or, in failing to get back, dies where it is. If further advanced, such shaking deforms the queen by her having crippled wings or legs, or, what is more often the case, the queen has a dent in the abdomen, certain segments of which are dented inward or the whole flattened or curved. While this last is not as bad as to have the wings deformed, yet it is a very rare case where a queen with a deformed abdomen proves to be a really good queen. Such queens generally become fertile and lay quite well for a time, so are of some value; but those whose wings are crippled are worse than no queen at all, for they can never become fertile, while they stand in the way of our successfully introducing a laying queen. In case such crippled-wing queens are of the German or hybrid race, they are very hard to find, and the parties who have ordered queens for supposed queenless colonies having such crippled queens, and lost them in trying to introduce them, can be numbered by the score, if not by the hundreds. No one should attempt to introduce a queen to any colony, unless he takes away the reigning queen at the time he puts in the new one, without first trying the colony with unsealed brood to see if they are really queenless. If they build queen-cells on this brood he can know that they have no queen; if not, then he may know that, if he tried to introduce a queen to that hive without first finding and taking out that which the bees are reverencing as a queen, he will be certain of losing the one he would have preside over the hive. But, to return: How shall we get the bees off the queen-cells if we can not shake them? The way I manage is as follows: Upon removing the frame of cells from the hive it is carefully set down at the entrance of the hive, the same side up that it occupied while in the hive, and the bees on it thoroughly smoked so as to cause them to fill themselves with honey while the hive is being closed, when smoke is again poured upon them to such an extent that the most of the bees will run into the hive, when the remainder are brushed off with one of the bee-brushes which can be had of A. I. Root. If they are loth to run off the comb into the hive, the whole can be brushed off; but be sure that they have filled themselves with honey before you undertake to brush off so many bees, unless you are willing to stand many stings, for the bees around queen-cells will fight with a vengeance for them, unless the precaution is taken to coax them to fill themselves with honey. If the weather is cool and the cells are to be placed at once in the hives, it is a good plan to take the bees along with the cells so as to keep the cells warm, when, with a little smoke, drive the bees off the cell you wish, so that they will be out of the way while you take it off the comb. After the cells are all off, then the bees can be shaken off the comb at the entrance of the hive, the same as from any other frame. This latter way of not trying to get the bees off till after the cells are, is good at any time where the cells are to be placed in different hives about the apiary.

STORES FOR WINTER.

As the basswood will be yielding honey in most localities by the time this reaches the readers of GLEANINGS, I think it will not be amiss to tell of a good plan of securing good stores for the bees to winter on. I know many will say, feed sugar syrup, but it is quite a job to feed a whole apiary with liquid feed at a time when robbers are always plentiful; besides, at the present high prices of sugar there is little if any profit in it. Good basswood honey is good enough for winter stores, and the advocates of the pollen theory can not object, for there is no pollen ever gathered from the basswood bloom. The plan is this: When honey commences to come in from basswood, four or five nice worker combs are placed in the upper story of the hive which we are running for extracted honey, and on the top-bars of each of these are placed the letters W. S., which signifies winter stores. These combs are to be placed about 1⅝ inches apart from center to center, and are not to be extracted from at all. As soon as the honey in these combs is sealed about two-thirds of the way down, they are to be spread apart, and other combs or frames filled with foundation placed between them in each alternate space, or enough to fill out the hive. These last are to be extracted from; but the former are to be let alone to the end of the season, when we have all the stores the colony needs, well ripened and of the finest quality. In preparing the colony for winter, place three or four of the frames of honey next one side of the hive, then place in one of the frames with the bees on it which has very little honey in it; next, the last comb of honey, and finally two more combs with the bees on them, when the hive is to be closed and the bees from the remaining frames that were formerly in the hive shaken off at the entrance. This is done so that the bees shall cluster at one side of the hive early in the winter, rather than in the center; for when in the center they frequently eat all of the honey toward one side of the hive; and if this happens in very cold weather they starve there, not being able to cross over to the other side. With the above plan they are all right as long as there is any honey in the hive. G. M. DOOLITTLE.

Borodino, N. Y., July 7.

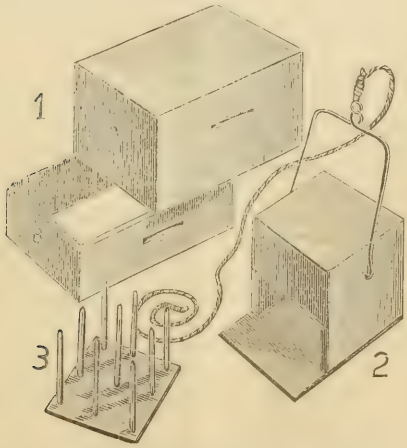
Friend D., I fear you are a little too emphatic in regard to what you say about shaking combs. It was suggested, years ago, to purposely save cells from combs that had been put into the extractor, and we did not find an imperfect queen as the result. They may, however, have been at such a

stage that they were not easily injured. At other times I have been troubled because of the number of queens with bad wings and crooked or indented bodies, and I should not be surprised if your remarks point out and explain some of these cases. I fear that many of our friends will object to using basswood honey for winter stores.

ANOTHER HIVING ARRANGEMENT.

O. R. COE'S METHOD.

Friend Root:—The method of hiving swarms that I have used for a few years is so simple that perhaps it might be best to have it described in GLEANINGS. I have a hiving-box made as follows: A square box, 12×12 inches, and 12 deep, with half of the front side cut away. For bottom I nail on a board 12x18, which extends out 6 inches in front; and for a cover a plain board in which I bore several half-inch holes and put in sticks 4 to 6 inches long, which extend down into the box on which the bees cluster. Fig. 3 shows the inverted cover with the sticks, and Fig. 2 the hiving-box complete, with cover on. The handle of the box is a small iron rod to which I have attached a few feet of small rope.



COE'S HIVING APPARATUS.

When a swarm comes out I wait until they just begin to cluster on a limb when I place a ladder near them. I then take the hiving-box and hold it in the hollow of my bended arm. I now tip the box forward until the bottom-board of the box stands at an angle of 45 degrees, and with the other hand I shake the cluster of bees down into the box, and they at once go up and cluster in the box. I now throw the rope over a round of my ladder or a limb of the tree near the ground, and leave it suspended. With my smoker I prevent any more bees clustering on the limb from which they were first shaken into the box, and in a few moments they are all quiet in the box.

I next prepare their hive, and always place an empty half-story under it, as in Fig. 1. A yard square of enamel cloth nailed to two pieces of boards 1½ wide, I spread in front of the hive. I now take the cover from my hiving-box with nearly all of the bees hanging to it, and the sticks, and shake the bees on to the enamel cloth; and if there are many bees yet on the sides of the box I turn it over and shake them on the enamel cloth also; then grasp the ends of the sticks of the enameled cloth, and, as you lift the bees up, they will slide down toward the center as it bags down, and then I hold it so that they slide down into the half-story hive. I now slide the hive forward. But few bees will fly, and the swarm is hived very quickly.

SOME OF ITS ADVANTAGES.

The great point is, that I can get them into the box as quickly as they would settle on to a limb or on to a Manum swarming device, and then, to all intents and purposes to the bees, they are hived. I can place a dozen swarms (if I have so many hiving-boxes) on the stands they are to occupy, and they will fly from and to the box, and mark their new location as well before as after they are placed in the hive. This is a great point with me when I have many swarms. I never had a swarm leave the hiving-box after it was once in it all right, until I shook them out. The enamel cloth fastened to sticks is a grand thing to use in transferring and many other uses, as bees can be shaken on to it and slid off where we want them. O. R. COE.

Windham, N. Y., May, 1890.

GLEANINGS FOR JULY 1ST.

SOME OF ITS CONTRIBUTORS.

Friends Root:—(You see I want to include Ernest in my greeting, for we have learned to appreciate the practical things from his pen as well as the good things from A. I.'s). I have just left off devouring No. 13 of GLEANINGS after having read every thing in it from cover to cover, including most of the advertisements, and now I propose doing what, many times in the past year, I have felt like doing, but never did; i. e., give you both my heartfelt thanks for the bi-monthly feast of good things that GLEANINGS never fails in bringing us. I need not say, "God bless you," for it is evident to all the 10,002 subscribers, and the additional host of readers of GLEANINGS, that he is constantly doing that. Let me say, rather, may God's blessing *continue* with you in all your future as you now enjoy it; and I will add, that I believe it will so long as you keep his colors nailed to the mast, and your one hand placed in his while the other holds the helm. And while I give thanks to yourself and Ernest, I want a good big share to go out through GLEANINGS to Dr. Miller, Mr. Doolittle, Prof. Cook, Mr. Manum, Mr. Hasty, Rambler, Mr. Heddon, and the many other veterans who so ably and interestingly discuss all pertaining to the apiary.

BLACK BEES GENTLE.

A little more than a year ago I knew next to nothing of one of God's most wonderful creatures, and scarcely ever gave the honey-bees credit for the delightful sweet I had so often enjoyed. But now, thanks to you all, and to the Father's hand that guides our steps, and led me to invest in a few colonies of bees, I have had the veil removed; and while I still stand enraptured on the threshold, and feel that I have but entered on a pursuit that promises exquisite pleasure, I have already enjoyed so much in the investigation of my interesting little friends that I am already a thousand times repaid for the score or so of stings I have received. It appears to me I must have secured an exceedingly gentle lot of bees. I have ten colonies. They are the common black bees, with possibly a

very slight admixture of Italian, and yet I can open any of them, handle as I desire, and when I please, and change from one hive to another, and brush out remaining bees without any such "lively fracas" as you had with your cross hybrids. In fact, the nearest approach to any such circus I have experienced was with pure Italians, in the apiary of the Misses Barnes, at Piketon. A short time since I made them a business call, and while in the apiary with a hastily improvised veil over my hat the wind blew it off, and in less time than I can tell it a dozen or more little warriors took a mean advantage of the situation and attacked me from behind, and with drawn spears they began prodding me so vigorously in the back of the head that I, like you, made an inglorious retreat; nor did the little rascals stop with "a field fairly won," but followed in very hot pursuit after I had crossed the fence, and until I entered the invitingly open door of an out-building some rods distant. But, thanks to a highly appreciated constitutional condition, the dozen or so stings received did not inconvenience me any worth mentioning.

I don't know that any thing I have to say will be of interest or profit to the gleaners of GLEANINGS; but feeling assured that you have a capacious waste-basket I can not forbear giving an item or two of

MY EXPERIENCE.

First, after nearly killing two colonies with the smoker while transferring from box hives, I discover I don't need any smoker at all to handle bees —at least, such as I have at present.

Second, I have learned that, even in fruit bloom, if weather be cold and wet, bees can not, without stores, keep from starving. I paid one colony and very nearly two, for this information, but offer it to my brother-amateurs free of charge.

Third, I have learned not to set frames of brood in the sun while searching others for the queen. I paid the greater part of a nice frame of brood and some bees for this practical knowledge; and if other amateurs don't say, "The fool ought to have known better than that," I will not charge them a cent for this bit of experience either.

Fourth, I have learned that it is not safe to lay a caged queen on the ground. The ants are liable to kill her inside of ten minutes. I paid a nice prolific black queen to learn this, and feel thankful it was not a more valuable one.

Fifth, I have learned a much more simple and easy way to introduce queens with the Peet cage than by fastening to the comb, as per printed directions. Just lay the cage on a board with the tin cover down; withdraw the tin and put it on from the other end. Now draw it back so as to expose about a quarter of an inch of the candy; lay it on the frames with the wire side down, giving the bees access to the candy, and the work is done. By the time they get the candy eaten out they are ready to accept the queen. I have introduced five in this way, successfully.

Sixth, I am half persuaded to believe I have learned a mechanical reason for the queen laying drone and worker eggs, and that she does not control it at all. But since amateurs always get to know so much more than the oldest veterans, and so much that, by practical experience, they are forced to unlearn, I will not give this crude idea to the public until I have proved it beyond question If some day I succeed in getting workers reared in drone-cells you will hear further from me on the subject. If not, then you will not learn of my folly.

QUESTIONS.

Now for a thing or two I have not learned, but which I should like to know. Why does a large prime swarm, with a fine prolific queen, start a queen-cell within a week after being hived, and before the frames are more than half filled with comb? I have such a case. Is it phenomenal?

Has any one ever noticed a queen deposit an egg in a queen-cell, or is there any indisputable proof that she ever does so?

And now I must tempt the maw of that capacious waste-basket a little further, and have my little say on that very interesting case of Jones vs. Brown. With all deference to Mr. Caldwell's legal acumen, I wish to modestly protest against his assuming that, during time of contract, Brown and Jones are alike owners of the bees. Now, if I understand the case, Brown, neither by the contract nor otherwise, gained any proprietary interest in the bees. Jones was as much the sole owner under the contract as before the contract. But, like landlord and tenant, he had intrusted his property into the hands of another, under certain conditions. As in the case of a professed tailor spoiling cloth intrusted to him to make a garment of, he is liable for damages to the full extent of the loss, so a professed apiarist should be liable for loss arising from want of skill or gross negligence, clearly proven, but no further. Let us vary the case, and suppose Jones was the owner of an extensive bee-hive factory in Johnstown, Pa., prior to the flood. He enters into a contract with Brown to take charge of the plant, on condition that Brown's labor, as manager, should balance Jones' capital invested in the plant, and that they were to bear all expenses of manufacturing equally, and divide the profits. The flood sweeps the factory out of existence. Can Jones hold Brown liable for the loss he sustains from a cause in no wise attributable to Brown's want of skill or negligence as manager? We think not. If the bees had been swept away by a cyclone within an hour after Brown took charge, would any sane man hold him liable to Jones for the loss? Would it in any wise alter the case if the cyclone made the havoc one or two years after Brown took charge? or if the cyclone was one of unforeseen and unavoidable disease? It seems clear to my mind, that, if the loss was by reason of want of assumed skill or negligence on the part of Brown, he should bear all the consequences; otherwise it is Jones's loss.

Wheelersburg, O., July 7. J. M. BROWN.

Friend B., your bees are gentle because they are getting honey. Wait until the honey-flow stops, and then see if you can handle them without smoke. I do know that bees are many times smoked most unmercifully when there is not the least reason in the world why they should be smoked at all. Your hints and experience are valuable. Most of the veterans have learned as you have learned; but you will probably save a good many beginners from loss. Your plan of introducing by the Peet cage usually answers as well as any; but where the queen is feeble, I should prefer to have her directly on the brood-comb. I think the ground has been gone over pretty fully in regard to why a queen lays drone and

worker eggs. Large prime swarms do not, as a general rule, start queen-cells within a week. I am inclined to think the queen of that colony will be superseded before a great while. Yes, a queen has been seen depositing an egg in a queen-cell.—The discussion in regard to Jones and Brown emphasizes the fact that partnerships, or bees on shares, seem to be, at the best, complicated and unnecessary. Better buy or sell outright.

SOME GLIMPSES OF THE HOME OF T. B. TERRY, HUDSON, OHIO.

LAWN, GRAVEL WALKS, EVERGREENS, ETC., IN THE FRONT, AND THE LUSCIOUS STRAWBERRIES IN THE REAR.

IN our last I promised you some pictures of friend Terry's home, and I am glad to see that our artist has succeeded so well. The graveled walk, the shrubbery, and vines by the porch tell their own story; and a row of evergreens on the right and on the left called forth exclamations of surprise from me on account of their regular appearance and beautiful shape. The house, it should be remembered, is on the north side of a street running east and west. These rows of evergreens, therefore, run north and south; and there is another row, seen in the strawberry picture, just across the back end of the dooryard, thus making an inclosure.

When I asked him what he did to the evergreens to make them so even and regular, and of such bright luxuriant growth, he replied that he did nothing at all. They are the ordinary arbor-vitæ. For a while I was a good deal puzzled to know why they did not look as our evergreens do, and a good many others'—one small, indifferent tree, and then another large one, and so on. The secret of it is, the ground was underdrained, enriched by thorough tilth and clover before the trees were put out. In fact, all the ground around friend Terry's home has been worked up to a degree of fertility and evenness of texture that makes all the plants and trees just alike. If the arbor-vitæ grows of its own accord of the beautiful shape of those about friend Terry's home, I should never think of bringing them into artificial shape with shears and trimmers.

HOME OF T. B. TERRY.

Having now viewed the front, the reader will please go with me up the gravel walk. We will turn off to the right, near the corner of the inclosure. Right here is the outbuilding that friend Terry has several times described in our agricultural papers. It is such a beautiful, secluded spot, overshadowed by the evergreens and other trees, that a picture of it is given in one of our rural papers as a hint to farmers in the way of comfort and convenience to their wives and grown-up daughters, to say nothing of the younger ones. As we step through the ever-

greens we come into the half-acre of strawberries. And here is a picture of what you see. This picture was taken from a hill, or gentle elevation, north of the house. Many of the strawberries were in blossom at the time it was taken. If you put on your specs you can get a glimpse of the blossoms here and there.

Between the evergreens and strawberries is a roadway. At the left of the roadway, and right back of the house, is the new half-acre of strawberries for the next season. These were planted in rows four feet apart, and plants two feet apart in the row, as I have explained. On the other side of the roadway is the wonderful half-acre which I recently visited while it was in full bearing. There are fourteen rows of berries, as you will see by the picture. Perhaps an expert could tell the varieties by the foliage. Next to the potato-field, on the left, there are three rows of some variety, the name of which I can not now remember; then come three rows that I am pretty sure, by their looks in the picture, are Sterlings. As the Sterling is imperfect, a row of Downings comes next as a fertilizer. Then we have Cumberland, Gandy, Bubach, Haverland, Jessie, and perhaps some others. They are alternate, so as to have one row of perfect after every two, or, at the furthest, three, rows of imperfect. The straw mulching is plainly visible in the paths; but the cut straw between the plants can not be seen except by moving the foliage aside; but in the whole patch there is no ground visible—nothing that can soil the berries. During picking time the straw is tramped down in the paths much flatter than what it appears in the picture; and one of the worst troubles, if it *was* a trouble, was the long stems of the Haverlands thrusting themselves right square in the paths in order to get sunshine to ripen. I believe friend Terry proposes to make the paths, especially through the Haverlands, a little more than a foot wide hereafter. Over in the field beyond the fence we saw the wonderful crops of wheat—35 or 40 bushels to the acre, right straight through the field. There are no

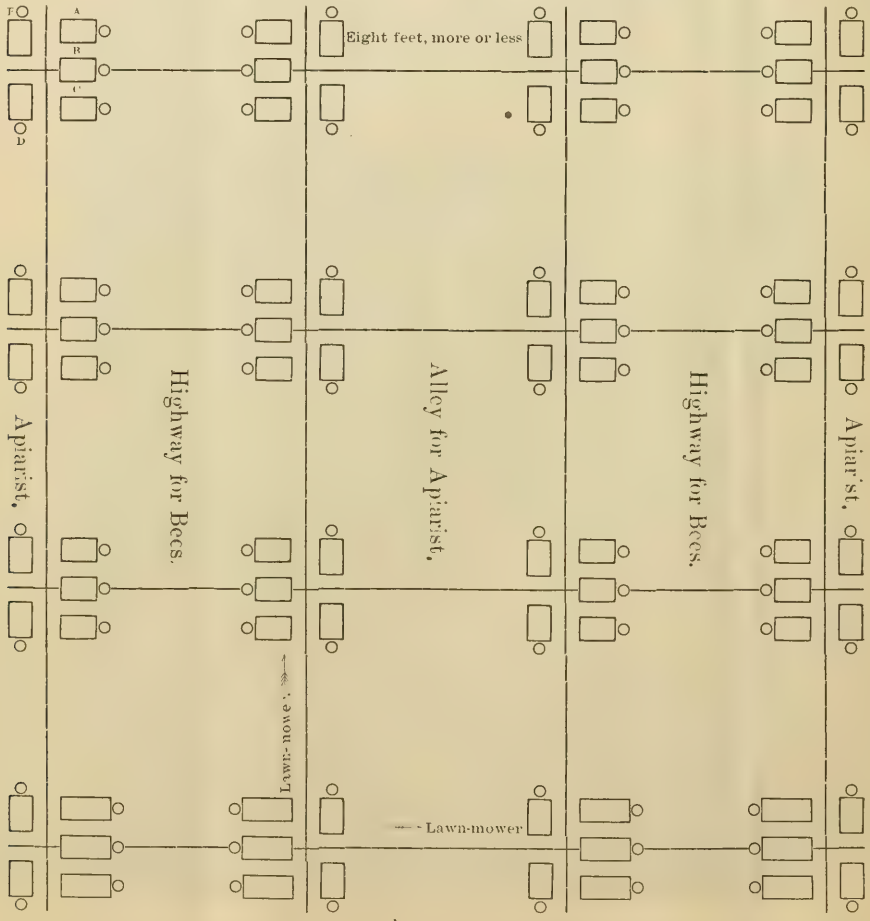
TERRY'S HALF-ACRE OF STRAWBERRIES.

trees on Terry's premises, except around the house. He does not tolerate a tree in his grain-fields at all.

PLAN FOR APIARIES.

A UNIQUE WAY OF ARRANGING 80 HIVES.

Friend Ernest:—I was very much interested in the article by C. A. Hatch, and your own following, page 374, May 15, as I have given this subject considerable thought of late; and seeing that suggestions on this are acceptable, I venture to offer mine; but I shall not be offended, and order you to stop sending GLEANINGS, if it never appears therein.



S. E. MILLER'S PROPOSED APIARY.

Our apiary is arranged hexagonally, and we are pleased with it in nearly every way; but when it comes to running a lawn-mower through it, I always wish it were arranged on a plan that would admit of running the mower parallel with the hives both ways. I have also noted what the senior editor has to say on the subject. Of course, we can have our hives in straight rows, and still be on the hexagonal plan, and that is just how ours is arranged; but we are bound to run the mower diagonally one or two ways in order to cut the grass between the hives in the rows. I herewith submit a plan of my theoretical ideal apiary. You will take notice that an apiary managed on this plan, containing 4 groups each way (16 groups), 5 in a group, would contain 80 hives—just about the proper number, and need not occupy a plot of ground to exceed 60 feet square, and still leave ample room.

In regard to bees going to the wrong hive, I should say that those at B would know their hive was the center one, C the left, A the right of the three facing one way; those at E and D would not be at all likely to mistake another hive in the same group (see diagram), and they would not be any more liable to go to the wrong group than they would if arranged on the hexagonal or Mr. Hatch's plan. You will notice that, when the grass in the main alleys is cut, the lawn-mower can be run between the hives in a group, though the distance from A to B should be some greater than I have allowed, in order to allow a large-sized mower to pass E without varying from a straight line. E could be set out so as to be on a line with A inside, but this would throw it out of line on the outside, unless the hives are square.

Hives E and D would have their entrances at right angles to the alley for the operator, and he might be in the way of some of the bees from said colonies, but not more so than if arranged other-

wise, and we can not expect to have it so arranged as not to be in their line of flight more or less at times, as they sometimes come out and turn short around the hive before rising higher than a man's head.

SHADE FOR HIVES.

Allow me to say, that the longer I keep bees the less use I have for shade over them. First we planted grapevines, and they did not make a growth to suit me, and I concluded it would be altogether too much labor to keep them nicely trellised and tied up, so I cut them off, and now some of them seem to want to make a nice growth. I next planted seedling peach-trees, intending to bud when they got larger, and these, too, seem to want more fussing with than seedlings that volunteer to come up among grass and weeds. However, there is an elm, a honey-locust, and a cedar tree in the apiary which we left when preparing the grounds. Now, during the cool rainy spell we have been having for some weeks up to within a few days ago, the bees in the hives exposed to the sun would soon come out and get to work when he deigned to shine a few hours; while those in the shade would not get warmed enough to bring them out of the hives. I don't believe I care much whether those peach-trees grow or not. White clover is immense, as well as alsike and common red, and the bees are booming. S. E. MILLER.

Bluffton, Mo., May 24.

I have been trying to find some fault with your plan, but I give it up. The more I examine into it, the more I am convinced that it is a good one, where economy of space and lawn-mower convenience is desirable. Whether better than Mr. Hatch's, I can not say. Instead of making each group 8 feet or more apart, as you have marked in your diagram, I would have them about twice that. Then I would have the hives 18 inches apart, so as to give plenty of room for a lawn-mower. Where hives are in groups 6 inches apart, long timothy grass will grow up, as we find by experience, and interfere greatly with the operations over the hives. Of course, you can cut it out after a fashion; but as neither lawn-mower nor sickle would be available, it will be necessary to hack it down with a case-knife, cutting a few spears of grass at a time. Well, then, if the groups are 16 feet apart, and each hive in the group is about 18 inches apart, an apiary of 80 colonies may cover about 70 feet square, if L. hives are used. It could be very easily accommodated in the back yard of an ordinary half-acre town lot, with a frontage of, say, 80 feet. With this arrangement of distances, a bee from the entrance at A, say, would have to go 40 feet to the east to find an entrance just like the one to which he belonged; and yet this entrance would be considerably different, after all. The entrance of A is near the west corner of the apiary; and an entrance similarly situated, and 40 feet east, is a little more remote from the opposite corner. Taking it all in all it is hardly possible that a bee *could* make a mistake. Of course, an apiary on this plan might not occupy more than 40 feet square, if the colonies are crowded a little closer together. But space usually is not as valuable as that. Aside from this, it is well arranged for a lawn-mower. I hope that all who can will give it a test at as early a date as possible. In actual practice there may be some serious objections to it. You will observe that it is friend Hatch's plan, as described on page 374, carried out a little more elaborately. ERNEST.

THE BLUE AND GREEN APHIS.

SOMETHING ABOUT PLANT-LICE IN GENERAL; KEROSENE EMULSION AS A REMEDY.

There is a little green louse, or parasite, destroying my apple and plum trees. I send you one dollar to send me something to spray them with. Please send me whatever you know will fix them. What do you spray them with, and how prepared?

Dell, Ore., June 12. G. J. GRAY.

On receipt of the above we wrote our friend that we did not know any thing that would destroy the insects that were injurious to his trees. We wrote him that we had tried in vain to destroy them on our cabbages, but gave it up. Whenever the emulsion was applied with sufficient thoroughness to destroy the insects it injured the cabbages so much that they did not amount to any thing. That has been my experience for two or three years. Perhaps I should remark that relief came to us in our cabbage-raising, in the shape of a little insect, or bug, looking something like the larva of a potato-beetle. We forwarded samples of these to Prof. Cook, asking him to tell us about our unknown friends. Our readers will notice that he replies to both matters at once:

Friend Root:—I am surprised that you say that the kerosene emulsion will not kill the "blue plant lice" of the cabbage. I have believed, as the result of many trials, that it would, if used thoroughly, kill any plant-lice. To even suggest that those at the "Home of the Honey-bees" are not thorough, would be unpardonable: so you see we are in a dilemma. But, did you apply it with a force-pump so that you surely brought the liquid in contact with every louse on the plants? If so, and the lice were not killed, then you have tougher lice in Ohio than we have in Michigan. Please make the emulsion as I recommend in Bulletin 58, and apply with a force-pump very thoroughly, and write me the results.

Anent this subject of plant-lice, let me say that if G. J. Gray, Dell, Oregon, will thoroughly spray his trees with the kerosene emulsion, he will surely destroy his enemies. I have often done this, and have recommended it to others who have used it with entire satisfaction, and have thanked me heartily for the suggestion. It is specially desirable in case of young trees or nursery stock, to destroy the insects, unless, as is often the case, their natural enemies do it for us.

And this leads me to speak of the little helpers that have come to your aid in rescuing your cabbages from destruction. Of course, friend Root, you know the little lady-bird beetles "when to manhood grown," though you do not know the babies. The two insects you sent were the grubs or larvæ (Fig. 1) of one of our common lady-bird beetles. The grub, or larva, is elongated, much like the potato-beetle, only more so, is black, mark-

ed with orange or yellow, and is found very common at this season on plants in company with ants and plant-lice. The ants are there to sip up the nectar from the lice, the lady-bird beetles to take lice, nectar, and all. Both the grubs and the mature beetles feed extensively on the lice, and thus prevail mightily against this small but terrible pest. When the box arrived, one of the grubs had assumed the mature form. I hope you did or will box one or two, feed them liberally with lice, and thus get a better introduction than any description can give you; for you may well say, "I wish to give them a hearty thank-you."

Some of these beetles—indeed, nearly all—are yellow or orange (Fig. 1), spotted with black; hence such significant names as maculata, 9-notata, 12-punctata, etc. Others (Fig. 2) are plain yellow on the wing-covers, while one small species, very common here and very useful, is black, with two orange spots, one on each wing-cover (Fig. 3). All are short and broad, or rounded, in outline. Fig. 1 shows the larva, pupa, and imago, or mature beetle. As will be seen, the pupa is very small compared to the larva and beetle. This is true of all the lady-birds. The short lines beside the figures give the true size. Hardly a day passes that I do not see these insects feasting on plant-lice. They eat as though they greatly relished the food. I almost fancy that I can hear them smack their lips as they suck dry the fat, full-fed lice.

You may well feel to thank these and thousands of other insects that work in a similar way for us, asking no wages, and truly boarding themselves. Without these helpers, our injurious insects would prevail. Agriculture would be a hopeless industry, and our earth soon a desert waste. How wonderful is this balance in nature! Everywhere there is a limit set to accomplishment; everywhere the "fittest succeed." Everywhere success comes only with struggle and effort. How can any one study in this grand book of nature, without becoming charmed with the grand scheme of creation, and reverent as he contemplates the great Planner? Though his "ways are past finding out," we see enough to thrill us with admiration and love. A. J. COOK.

Agricultural College, Mich., July 2.

Friend C., I really beg pardon. I knew the lady-bug, as we call it, but I did not recognize the larva. As the blue aphis has entirely disappeared from our cabbages, I presume it has come about through the agency of these insects. A couple of years ago we tried every thing for the blue aphis on our cabbages and turnips that has been recommended through the papers. Some of the remedies disturbed them a little if we took pains enough; but even then, the remedy injured the cabbage more or less; and even if it had been a perfect cure, the time spent and the cost of the material amounted to somewhat more than the value of the cabbages. Perhaps a little instruction in the matter might help us to do better.

HIVE-COVERS.

AGRICULTURAL NOMENCLATURE.

I SHOULD like to add my experience to the hive-cover controversy. My hives are a simple box nailed together to hold the frames, cleated at the ends. Covers and bottoms are alike—simply a plain board cleated at the ends similar to Dr. Miller's, only the cleats are made of 1¼-in. stuff, and *rabbeted* ½x⅞ in., and nailed both ways—that is, through the cleat into the end of cover and through the cover into the cleat. I have used such hives and covers for about 12 years, and I am well pleased with them. I paint *both* sides of covers and bottoms. The cause of a cover warping is the swelling of the under side from absorption of moisture and the shrinking of the top through evaporation. Painting does away with a good deal of this, and the *rabbeted* cleat the remainder.

I was much interested in Dr. Miller's article on the above caption; but your answer to the question, "What is an apiary?" though it may be good Webster, does not seem to me to cover the ground, or, rather, it covers *too much ground*. If an apiary is a place where bees are kept, then what is an apiarian? A man who takes care of a place where bees are kept? Again, we often hear the expression, "Moving an apiary." Now, we can not move the *place* where bees are kept unless they are kept in a house and the house is moved. And in connection with this I should like to call attention to the fact that the names of some of our forest-trees that produce honey are often misquoted. For instance, the poplar is often called by the names of "whitewood," "tulip-tree," etc., and you, Mr. Editor, seem to think that poplar and quaking aspen are one and the same. Again, the cottonwood is often called whitewood, which would lead some to think it the same as poplar. Now, my experience is that these are all different trees except the tulip-tree, which I believe to be the same as poplar, and so called on account of the blossom resembling a tulip. The name whitewood has simply been used because that is the color of the wood of all these different trees. The cottonwood, balm of Gilead, and quaking aspen, are all different trees, though very nearly allied to each other. The poplar is of another and distinct type. It yields honey in great profusion some seasons, while the other three yield nothing, to my knowledge, but propolis and pollen.

BRACE-COMBS.

Dr. Miller suggests that, in experimenting with thick top-bars, tin strips be tacked on each side of the top-bars to increase the thickness. Now, may it not be *possible* that the doctor's suggestion will bring forth fruit not dreamed of? Is it not a fact that bees are a great deal more inclined to stick wax to wood than they are to tin? Again, what harm (or good either) would it do if these same strips of tin were raised up ¼ in. above the frame (instead of even) and perforated same as the excluders? This is merely a suggestion. No charge for postage and packing. I give it free.

Santa Paula, Cal., Feb. 19. R. TOUCHTON.

Friend T., I did not mean to say that the poplar and the quaking aspen *were* one and the same thing, but that in our locality the tree is called by both names, while in the South our whitewood, or tulip, is called poplar. I do not know how we can straighten up this confusion in the names of trees.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 164.—*What width do you prefer for top-bars? For bottom-bars?*

1, 2. ⅞ inch.
Wisconsin. S. W. S. I. FREEBORN.

1, 2. ⅞ of an inch.
Michigan. C. A. J. COOK.

⅞ all around.
Illinois. MRS. L. HARRISON.

1, 2. ⅞ inch.
Illinois. N. W. DADANT & SON.

I have always used them ⅞ of an inch wide.
Ohio. N. W. A. B. MASON.

Not wider than worker-brood comb. 2. If any different, narrower.
New York. C. P. H. ELWOOD.

We make all of our frames out of ⅜×⅞ pine lumber—tops, sides, and bottoms all the same.
Wisconsin. S. W. E. FRANCE.

One inch. 2. ⅝ inch. After experimenting for years I adopted the above, and have no desire to change, at present at least.
New York. C. G. M. DOOLITTLE.

Not wider than ⅞ in any case, nor narrower than ¾; bottom-bars the same, so far as width is concerned.
Michigan. S. W. JAMES HEDDON.

One inch, I suppose, because I have always used that width. 2. ⅞; I have tried ½, but that is too narrow, as the bees build comb around and under them.
Vermont. N. W. A. E. MANUM.

Our top-bars are of inch stuff, running down to a beveled edge. Our bottom-bars of frames are ⅞ inch wide, just the size of worker-combs—the best size for the prevention of brace-combs.
Ohio. S. W. C. F. MUTH.

One inch, both for ease in manipulating frames and uncapping honey, although in this county the uniform width is ⅞, being more convenient for the planing-mill men in cutting them from scraps in making hives. 2. ⅞ inch.
California. S. W. R. WILKIN.

I keep my preference for ⅞-inch bars until some other style of bar is proven a sure remedy for brace-combs. Then, if the desirable thing is not too awkward, I may adopt it. 2. Bottom-bars might be as narrow as ⅝ if there were any object in having them different from the tops.
Ohio. N. W. E. E. HASTY.

I have always used ⅞ for both top and bottom. I find a wider top or bottom interferes with uncapping when the extractor is used. The wide top and bottom bar becomes a still further nuisance in this respect when closed-end bars are used. A spoon-shaped uncapping-knife would have to be used.
New York. E. RAMBLER.

Such a width that, when properly spaced, there will be between the top-bars just a bee-space and no more. 2. A little less than the top-bars, in order to give the bees free passageway between them. I see nothing practical in being very nice about the width of bottom-bars unless we have some means of spacing them uniformly.
Ohio. N. W. H. R. BOARDMAN.

1, 2. I do not know. I have always used them ⅞ wide. I do not want them much less, and I am not sure that I want them wider. I am going to try 500 frames this season with top and bottom bars an inch wide. This is for brood-frames at fixed distances. For the ordinary hanging-frame I am very sure I should not want them wider than ⅞. My frames for extracting are wider, but combs are thicker—7 in 11⅜ inches.
Illinois. N. C. J. A. GREEN.

1. That width which will allow $\frac{5}{16}$ of an inch between them. If 1⅜ is the proper distance from center to center, then I believe top-bars should be $1\frac{1}{16}$ wide. 2. I should want bottom-bars just as wide as top-bars, if they would stay at regular distances apart. But with the ordinary hanging frame, if you look under the bottom-bars you will see they have a way of getting together and spreading apart, so that, to keep them from being glued together, they must not be more than ⅞ wide. Even at that width mine are too often glued together.
Illinois. N. C. C. MILLER.

I am a little surprised to find the testimony so universal for ⅞; but, dear friends, is it not a good deal because we have used the ⅞ so long, and have not tried any thing else? Dr. Miller makes a suggestion which I wish to emphasize. If your hives have movable bottoms, just take a look some time and see how the bottom-bars are spaced—I mean after you have put the top-bars in very good shape. By tipping the hive back from the bottom-board you can get a glimpse of the bottom-bars. Now, whenever I have looked at them it has seemed to me a little unfortunate that we should leave things in such shape, and expect the bees to manage all right with all sorts of distances, and combs even sticking together at their lower edges.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

ROYAL GLUE FOR LABELS ON TIN.

If you will use "Royal glue" for sticking labels on cans and pails, I think they will stay. I don't have any trouble in making them stick with it.
Washington, Ind., May 3. MRS. S. D. COX.

EVERY THING SEEMS TO YIELD HONEY.

The past ten days have been good bee-weather, and bees are just booming here. All the little apiaries are increasing 100 and 200 per cent. My own is not swarming so much, but working in sections, and it looks as though I should have cases filled and capped by July 4—unusual here. Every thing seems to yield honey. A. A. LEWIS.
Waterbury, Vt., June 24.

A GOOD FLOW.

I must have a great many more sections if the flow of honey continues as for the last three weeks. Swarming weather, hot and wet. J. BAGLEY.

Serena, Ill., June 28.

COLONIES IN THE OPEN AIR.

A few years ago a neighbor of mine, an old bee-hunter, found one on a poplar, on the outside, under a short bend, that I think had about 50 or 60 lbs. of honey. C. R. RUTH.

Elimsport, Pa.

CHAFF HIVES.

Is there any thing ahead of the chaff hive, described in A B C of 1879? GEO. F. KNAPP.

Springport, Mich., June 11, 1890.

[That is a question we can not answer. Our chaff hive has given splendid results in wintering. It is not as portable as the smaller hives, nor as handy to use. A. I. Root uses the chaff hive, and prefers it to any thing else for a general-purpose hive; although at the same time he would always have Dovetailed hives, or Simplicity, to use in connection with the chaff hives.]

A FATAL STING.

One of my neighbors, Samuel McAdams, was stung on the neck by a bee last week and died in 20 minutes. FRANK BUTLER.

Carrollton, Ill., June 30, 1890.

[This is a sad record, friend B.; but please let us remember that, if somebody should call for instances where people have been killed by horses or cattle, there would be a hundred or more such cases where we find one who has been killed by bee-stings.]

THE SEASON IN ILLINOIS.

The season here is very poor so far for white honey. The fields are white with clover, and the basswood is in bloom, yet the bees are idly lying out with the foundation in cases scarcely touched in many cases. I do not now think we shall have one-fourth of a crop of white honey. Similar reports come from all directions. C. H. DIBBERN.

Milan, Ill., July 1, 1890.

IMPROVING POOR HONEY.

I have honey that I have kept in an open-mouthed vessel for two years, and it is still foamy. What can I do with it? GEO. GOULD.

Villa Ridge, Ill., July 7.

[You do not tell us whether the honey is good quality. Probably not. Sometimes, in such cases, running off the liquid portion and then melting the candied part will give you very nice honey—that is, from the candied part.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SECTIONS NOT SOLD BY WEIGHT, BUT BY THE PIECE.

If you will permit, I should like to correct the impression you seem to have, that honey is invariably sold by weight. According to your reply to friend E. C. Newell, one would suppose you certainly had overlooked the truth in this matter. Mr. Newell is correct in his statement, page 464, that grocerymen invariably refuse to buy or sell any other way than by the piece, especially after their first years' selling of section honey. Neither, as Mr. Newell says, will they allow you any thing for extra weight. This thing I have thoroughly tested in our local market. My groceryman suggested to me to have my sections made at least ¼ inch narrower, as I was losing from 2 to 3 ounces on each section this part of the season, and he couldn't help it. Mr. Newell says he strongly objects to your statements in this matter, and your reply will still surprise—yes, grieve him, to think you are so out of it, and at the same time ignore, apparently, all that he has invariably found to be the case. Please let Mr. Newell have the satisfaction of knowing there is at least *one* who indorses his statement; and, if I am not greatly mistaken, others by the score are ready to do the same.

I want my sections hereafter 4¼x4¼x1$\frac{13}{16}$, in place of 1$\frac{15}{16}$, then there will be no possibility of so much overfilling. I should like to hear the views of others on this matter. I am aware that, in the fall, when our crates begin to have light weight, grocers would rather take in by weighing. But my understanding is, no reduction the season through.

Pine Grove, O., June 24, 1890. S. DANIELS.

That is right, friend D.; give us the facts, no matter whom it hits. If sections of honey are sold in many places for so much apiece, we certainly ought to know it.

A HONEY-WELL; A MAN BORES INTO A BLUFF, AND SECURES THE SWEET ARTICLE BY THE BARREL.

The heading as above, together with the following, appears in the *Cleveland Leader* for June 27:

LOUISVILLE, KY., June 27.—A successful boring for honey has been made in North Tennessee. For many years swarms of bees have been noticed by boatmen at Fox Bluff, on the Cumberland River near Franklin, Ky. The bluff is 170 feet high, and the river's channel runs directly under it. The bees have been observed about a big fissure near the center of the bluff, and the opening could not be reached from above or below without great danger of being stung to death. As the bees had never been robbed it was believed a large amount of honey was stored in the cliff. Secretly a well-borer named Staks visited the bluff, and was at once impressed with the idea that he could reach the wonderful honey-storehouse with his drill. After some coaxing he persuaded a number of farmers to undergo the expense, and a three-inch hole was bored from the top of the bluff. At a depth of 85 feet the drill struck the honey. Barrels and tubs by the score were filled and carried off to neighboring farms, and the syndicate has sent to Louisville for more receptacles.

It seems a shame to give space to any such silly statement as the above, and we would not do it were it not that, whenever some newspaper reporter manufactures such a yarn, it comes to us right and left. Oil and gas may come out of a hole drilled in a rock, but not honey.

PUTTING YEAST INTO HONEY TO KILL OFF NEIGHBORS' BEES.

Last spring I had 10 colonies (hybrids), and they increased to 40 by fall, besides giving me considerable honey. I wintered them indoors; placed them in tiers against the end of a building, and packed them in straw. Most of them lived till spring, but have dwindled away since, except five colonies, and they are not in the best condition. I wintered them the same way the two previous winters, without any loss. A neighbor had some trouble with robbers. He closed his hives and left a hive of honey, without bees, open, pouring yeast into the honey (so it is claimed). My bees, of course, went there. Is it possible that that has been the cause of the disaster? Will it be safe to give the same

hives to new swarms, there being considerable honey left in most of them?

WHAT DO THE COURTS DECIDE ON THE MATTER OF DESTROYING BEES WITH POISONED HONEY?

Has it been tested in courts whether people have a right to destroy bees, and endanger consumers of honey that way? If it would not be too much trouble, I wish you would reply to this in GLEANINGS. A. HENNINGS.

Alabama, Wis., June 3.

Friend H., this story about feeding bees yeast in their honey is very old. I do not believe it was that that killed your bees; but I am inclined to think, from what you say, that they had the spring dwindling. I do not know that the matter has ever been tested in regard to poisoning bees; but it certainly would be a very clear case, for our laws are very severe on any one who wilfully poisons domestic animals of any sort.

WIDER ENTRANCE FOR THE CHAFF HIVE.

I see by GLEANINGS you have abandoned the 8-inch entrance to chaff hives, and adopted the full width. If you will jog your memory I think you will find I was one of the first if not the first to insist upon full-width entrances to chaff hives, both one-story and two-story. If you please I should like to insist upon another improvement. There will not be any more demand for brood-frames with top-bars ⅞ wide. Many of us think 1⅛ too wide. Many of us wish to continue the use of metal corners. It is hard to use all-wood frames and be a Christian at the same time. I want to use metal-cornered wired brood-frames with top-bars one inch wide and ⅜ thick, wired as you have been wiring them, with tin bar in the middle.

Bonney, Pa., June 20, 1890 PHILO S. DILWORTH.

Yes, you did suggest making a wider entrance; and from what you and one or two others said, together with our own convictions in the matter, we commenced this spring to make them full width of the brood-chamber. There is no reason, if single-walled hives have the full-width entrance, why the chaff hive should not. Don't be too positive that there will be no more demand for a narrow top-bar ⅞ inch wide. The *tendency* of the times *looks* that way.

THICK TOP-BARS; RUSHING AFTER NEW THINGS A DAMAGE.

I have just read in GLEANINGS, page 182, "It is a serious matter to lumber our homes and our apiaries with things that may, after a little while, be discarded as useless for the purpose for which they were recommended." Now, I will venture a prophecy. The wide and *thick* top-bars that you are just now booming so vehemently will turn out just as stated above. They will soon be regarded as an intolerable nuisance, then away they go, and what a time there will be to get the combs out and fit them into other frames! Top-bars one inch wide and ⅜ thick, properly spaced, will prevent brace-combs as effectually as one inch or ⅞ thick. I know whereof I speak. I saw it tried; but there are objections to wide top-bars, that make me extremely reluctant to go back to them. I have not used a honey-board since I discarded the old Langstroth style of hive, and I am satisfied in my mind that I never shall. My hive is so constructed that a super of the same length and width is just right for 32 one-pound sections 1¾ wide without separators, and leaving room to slip in a ⅞ board in one side as a clamp. I then place two strips 7 in. wide, of painted cloth, between the sections and the brood-frames, and that does the business to my satisfaction. The making of frames an inch or 1½ involves quite an extra expense over frames just ⅞ wide. In most places suitable lumber can not be had without special order for the purpose, and that at once involves an extra price, to say nothing of the extra quantity.

G. B. REPLOGLE.

Centerville, Iowa, Mar. 12, 1890.

What you say regarding thick top-bars *may* be true; but if we reject every thing new *because* new, apiculture would be at a standstill. On such a basis the world would never have had a sewing-machine or a steam-engine, and you possibly might have been plodding along without movable frames. No, friend R., it is worth our while to properly examine into the merits or demerits of the new, and then use a little discrimination. Have we not urged, in almost every number of the journal, to go slow and try a few, and, if the few justified trying more, try more? If you will turn to our catalogue you will see that we sell thick-top-bar frames for the *same* price as the thin ones. There is more lumber in the former, but they are more cheaply made. Thin top-bars are quite liable to sag, but the thick ones will hardly be affected by the weight of combs. Top-bars 1x⅝ inch, properly spaced, will not prevent burr-combs with us.

E. R.

THE DOVETAILED HIVE AND KEENEY'S WIRING.

The Dovetailed hive is very neat, and I shall like it better after using a while. I am not sure about the slatted honey-board. I put in the nine slats and placed them even. Before the super is put on I find the bees will bridge their frames to the cover. That may be because the frames have already been plentifully bridged on top when used in other hives where I use a cloth. But I scraped the top-bars as well as I could before putting in the frames. I find it necessary to put on the enamel cloth. The new plan of wiring frames, introduced by E. D. Keeney, I have tried with improvements suggested by Ernest; foundation only four inches deep, and stick one edge into the slot that was made for comb-guide. It works wonderfully well.

Hopkinsville, Ky., June 9. D. F. SAVAGE.

NOT AGAINST PERFORATED ZINC.

Spring opened with bees in good condition. I did not lose a single colony until April. A neighbor asked me to assist him in overhauling his 30 colonies, when we found 9 dead. I told him of my success in wintering, not having lost a colony in 7 years, the entire period I had owned bees. But after a week's rain I told him a different tale. I had lost 8 colonies out of 18. But after the weather settled, the little fellows went to work in earnest; and up to June 14th I had taken 522 lbs. of as fine clover honey as one could wish. I will add, also, that my hives with perforated honey-boards did much better than those with wooden ones. At this date the honey-flow is about over, as we have little else here besides clover that yields honey sufficiently to store in supers. E. W. STAYTON.

Bowling Green, Ky., June 21.

The statement has been made, that per-

forated zinc diminishes the amount of honey stored in the supers. The testimony above doesn't point that way. Bees will store honey just as well above perforated zinc as they will without any.

ANSWERS TO QUESTIONS; WAGES FOR EXTRACTING, ETC.

1. One of my old hives has plenty of bees, but had little brood, compared with others during the honey flow, and they stored no surplus at all. Is the queen too old? or what is the cause?

2. If a man goes out extracting for other bee-keepers, what is the usual compensation? Do you think 5 lbs. per hive too much? or would it be more just to take a certain percentage?

3. I want to establish an out-apiary next year, with a party who keeps about 6 to 10 hives himself. He wants 5 lbs. of honey for every hive of mine, and is willing to give me 5 lbs. for every hive of his for the care of his, both parties keeping their own increase, if any. Is this arrangement just? If you think the answer to these questions will interest others, you may publish the same.

Olmsted, June 26. M. R. KUEHNE.

1. Queens during or just before swarming time very often stop or diminish laying temporarily. After the swarming season, or after the colony has swarmed to a new location, the queen will commence in good earnest.

2. About $2 00 or $2.50 per day ought to be fair wages for extracting, the person proposing to do the extracting furnishing the extractor. Five pounds per hive would be pretty big wages.

3. The arrangement proposed would hardly be fair. Suppose you owned, at the out-apiary, 100 colonies, and the other party owned 10. You would have to give him 500 lbs., and he would give you in return but 50.

PROSPECTS POOR FOR THE LOCALITY OF E. FRANCE.

Mr. Root:—When you were having your rainy weather in Ohio we had a three-weeks' drouth. Now we are having rain and floods—rain, rain, rain. Cornfields are green with weeds. White clover is scarce—that is, old enough to blossom. I was at one of our bee-yards the 19th, and could put all the clover blossoms that I saw for five miles, into a peck measure. But the young clover is thick all over the ground; but that won't blossom this year. Bees have had a hard time to make a living for the past three weeks. We went through one yard yesterday. I don't think they had, on an average, one pound of honey per colony, and many did not have enough for supper—not a bit of new comb built yet. Basswood looks promising. E. FRANCE.

Platteville, Wis., June 21, 1890.

WHY THE BEES DWINDLE.

I should like to ask you for a little advice. I bought me a swarm of bees one year ago this spring. Last season was a bad one for honey. The bees filled the hive full of comb, but did not make enough honey to last them through, so I fed them all winter when the weather was warm enough. This spring the bees were in good condition, and plenty of them; but for some cause they have dropped off, and I don't think there are fifty bees in the hive. I have watched them closely, and I don't think there have been any moths near them, but I think they grow less from day to day. Will you please advise me in regard to the matter? I should like to raise bees if I can make a success.

New Haven, Ct., June 26. E. W. EASTER.

From your letter we gather that the colony you mention was queenless, and of course they would then dwindle down to mere nothing just as you state. The colony is now probably too far gone to help matters any by giving them a queen. You could very easily make another start by buying a two-frame nucleus and an untested queen. These if the hive is Langstroth size could be put right into the hive where the bees died, and in a very short time you would again have a good colony of Italians for the next winter. If your hive does not use the regular L. frame you had better purchase a pound of bees and a queen.

WHY DID THE QUEENS STOP LAYING DURING THE HONEY-SEASON?

I should like to ask you a question in relation to my bees, and, in fact, all the bees in this place. They are dying a natural death, for the queens have not laid an egg for six weeks; and what the cause is I don't know. It is not for the want of stores or honey-flow, for there have been hundreds of acres of alfalfa in bloom of late, and the weather is not unfavorable.

ANOTHER POISONOUS HONEY-PLANT.

The bees worked well for a couple of months since, on a weed that is called loco. Now, that same weed is very poisonous to horses when they eat it, and also to cows. It is not always fatal, but they get crazy. Is there any thing in the flower that will prevent queens from laying? While the bees worked on it the queens were laying, and colonies increasing; but when the loco stopped blooming the queens stopped laying, and consequently the bees are dwindling down to nothing. Have you ever heard of a similar case? There has been loco here every year since we started bees here four years ago. JAMES CHRISTIANSON.

St. Johns, Ariz., July 1.

Friend C., it seems to me you have answered your own question; namely, the weather was not favorable. Queens will not lay, as a rule, unless honey is coming into the hive; and no matter if there are hundreds and thousands of acres of blossoms, there are times when there may not be a drop of honey for the bees to get.—Perhaps Prof. Cook can tell us something about the poisonous honey-plant you mention. I do not remember to have heard of it before. Even though all you say be true, I hardly think the honey is poisonous or has any thing to do with the non-laying of the queens.

A QUEEN OUT FOR A PLAYSPELL.

I received the queen in fine condition, and she is now doing finely. She commenced laying the second day after being received, and has filled three frames of eggs. I introduced her as per directions, and as I took a frame from the hive I stepped over to arrange frames, and see all was right; and on coming back in about fifteen minutes (I don't think the time to be any more) my new queen was poising at the entrance of the hive, taking her bearings very carefully. I dropped to the well-known position of a bee-hunter, to keep her against the horizon, and had the pleasure of seeing her majesty

have a fine frolic. Her circles included about two acres; and as she cut the air it was fine music to hear. In about ten minutes she returned, as nice as a veteran worker. After I found her laying I clipped her wing. All is well that ends well. I took a look at the cage and found three cells completely torn down. I think she liberated herself very quick. I lost my first queen about twelve days before I ordered this one. The most probable cause, I think, was, she took a flight and was caught by a bee-bird, as I have shot 25, and examination proved they really catch my bees.

Vine Creek, Kan., July 2. WM. H. DODGE.

Friend D., you have struck upon something that was fully discussed some years ago, and called forth considerable comment and some anxiety. You say a fertile queen took wing, to the extent of flying over perhaps a couple of acres. In your case she did not meet a drone. May be a queen that has once laid worker eggs never meets a drone afterward; and I believe that is the general rule in teaching. But for all that, I am sure I did see one queen, that we imported from Italy, take wing just as yours did. I do not know what she took wing for, nor just how long she was gone, for I only saw her returning. We have other testimony that seems to indicate quite strongly that queens, after meeting the drones once, fly out one or more times after this meeting.

ARE BEES ASSESSED AS PROPERTY?

I should like to know whether bees are assessed in your State or not, or in any other State that you know of. The county officers wanted the assessor to assess them. I told him them were not assessable unless there was a State law to assess them. He thought I was right. He wanted me to write and see if they were assessed in other States. JAS. R. WHIPPS.

Le Sueur Center, Minn., June 18, 1890.

I do not know what the prevailing custom is; but I think bees should be assessed with other property. In fact, if the assessor should pass by my bees I should feel slighted. If hives of bees are not property, then we had better all of us quit the bee-business. This matter has been up before, and there was some discussion on it some years ago. I do not want any thing from my neighbors unless it justly belongs to me; neither do I want any thing nor any privilege from the government of the United States unless it is fairly mine. Of course, I agree that there are things of so little use, or of a value so uncertain, that it is not worth while to tax them. If your bees and fixtures would not sell at public sale, then I should say they were not worth taxing. As hives of bees do, however, sell for something with other stock, this customary selling price, it would seem to me, should be the proper value for taxation.

WHY BEES SWARM OUT, ETC.

Can you give me any reason why a new swarm will settle in a new hive, and remain a few days, and then start out and leave the hive? Also, why a new swarm will enter an old hive where there is a good working colony already in it, and remain in it, and apparently work with perfect harmony? I had such a case the other day. Is it not advisable for a very strong colony to have as many as four or five supers placed upon the hive at once for ample room to work in? C. W. YOUNGMAN.

St. Paul, Minn., June 21, 1890.

The matter you mention is fully discussed under the head of "Absconding," in the A B C book. Absconding swarms often try to force an entrance into any sort of hive—one containing bees or one without. Sometimes the colony occupying the hive will receive them peaceably, and sometimes they will not. I would place enough supers on a strong colony to give them all the room to work, but not too many at once.

QUEENS FAILING TO HATCH BECAUSE WRONG END UP.

I have been a bee-keeper for seven years, during which time I have had three queen-cells that, having failed to hatch, an examination showed the queens were wrong end up—that is, their heads were turned toward the *base* of their cells. Is such a thing common? I have read my A B C book, but I don't find that you say any thing about such mishaps. The latest one I find I send you by to-day's mail, which has not been removed from the cell; but those that I have examined before, appeared perfectly developed, and I suppose that, if the cell could have been torn open just at the right time, they would have been all right. The one I send you should have hatched a week since. Do worker bees ever turn up that way? L. HALL.

Sparta, Miss., July 4.

This matter of queens and worker bees being found in cells wrong end to, has been commented on several times through our journals. Sometimes they gnaw out near the base of the cell, and at other times they are found dead in the cells. I do not know where the trouble is, unless friend Doolittle's suggestion hits the point—somebody shook the frame to get the bees off, and the queen wiggled around. If the frame, however, was never removed from the hive, and shaken, I suppose we shall have to admit that nature sometimes makes a blunder.

BURR-COMBS; PREVENTING WITH CROSSWISE SECTIONS.

a. Would sections tend to prevent burr-combs if put on crosswise of the frames? b. Would as much surplus be stored in them crosswise as lengthwise?

Falfa, S. C., June 3. G. D. MIMS.

I believe as much honey will be stored where the combs in sections are at right angles with those in the brood-frames as by the usual way. I do not believe the burr-comb will be any better, but, on the contrary, rather worse.

QUEEN SENT.

The queen ordered of you June 28th arrived in good condition July 3, and was introduced according to directions July 4th. I looked in the hive today, and found her released and all right. Thanks for your promptness in filling orders. She was darker than I expected to see, but, of course, she is all right. This is the first one I ever saw; but I supposed they were very bright, like the workers.

The honey-flow is about over here, and has been very poor indeed. I notice reports in GLEANINGS from apiarists, that vary from 50 to 200 lbs. per colony. Now, I should just like to have you tell

me how to do this. I am very much interested in bees. I like to work with them, and am very fond of the honey. We think that 50 lbs. per colony is a big yield. We have no artificial pasturage, except a little buckwheat. There are a few colonies upon almost every farm, but nearly all are blacks, and in box gums. The owners seem to think these boxes as good as any movable-comb hive. That corn you sent me in the spring is fine for early use. I shall save seed from it. C. C. POLK.

Bradford, Ala., July 5.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE HONEY YIELD.

FOR the last few days we have had an unusually heavy yield of nectar. The busy toilers have been coming in and dropping on the entrance by the score. At night the whole apiary has been one continual roar, and the fragrance of newly gathered honey is as apparent to the nose as the roar is to the ears. If this state of affairs should be general, and continue, there will be a good yield throughout the United States.

Later.—The weather has turned cool and honey has stopped short off, and robbers, especially from the hybrid colonies, are beginning to nose about. When we had hot days and hot nights the flow of nectar seemed to be very heavy; but now, the 11th, none seems to be coming in.

THE ALLEY DRONE-TRAP.

This year we were obliged to buy a good many colonies, and there were not a few hybrids among this number. As we were rearing queens right along, it would not do to let the half-blood drones have liberty in the air. All undesirable drone brood was uncapped after the hybrid queens had been removed, and then the Alley drone-traps were attached to the entrances. Two or three times the upstairs apartment of the trap was full of drones, that had gone up through the cone, and, being imprisoned, died.

IS THE TRAP A HINDRANCE?

The question has naturally come up as to whether a trap is a hindrance to the workers. For a few days it does disconcert them a little; but after they have become accustomed to it, they pass readily through the zinc. Bees have to learn a little knack in getting through the zinc, and, after having acquired it, they slip through in a twinkling.

There is just one improvement that I would suggest to friend Alley. He has already obviated the difficulty somewhat in his automatic swarming arrangement. The trap is too small. As the perforations can not be any larger, there should be more of them. With the ordinary size of trap, during night, when bees are evaporating honey, a good many of the bees will get around the openings, and very materially retard rapid evaporation. If the night is at all warm, the bees cluster out and cover the trap almost entirely—making the matter somewhat worse. During the honey-season, bees ought to have the full-width entrance of the hive.

FOUNDATION, AND WHAT DRAWS OUT BEST.

I have been making quite a number of experiments on different kinds of foundation. For the brood-nest, I find that the heavy brood (so styled in our price list), running 5 feet to the pound, gives altogether the best results. The cell-walls in this are heavier, and are circular, leaving a little more wax in the corners of the hexagons. The light brood (7 ft. to the lb.) which we ordinarily use for the wired frames, has a tendency to be wavy on being built out, and on horizontal wiring it would not do at all. Now, may this not account for the difference in the reported results of horizontal wiring as to whether foundation will bow out or not? If heavy brood foundation is used with the horizontal wires, no trouble will be experienced. Even on a perpendicular plan, light brood foundation, when drawn out, has a wavy appearance, because the bees will stretch the cells a little in drawing it out.

KEENEY'S METHOD OF WIRING.

This works very satisfactorily. Even with light brood it does as well as with the perpendicular plan; but with the heavy brood it is just perfect.

THICK TOP-BARS.

They are working very successfully. Burr-combs have been built up above thin top-bars, but the thick ones are free so far. They do not seem to sag very much yet, either.

THE HOFFMAN FRAME.

The modified Hoffman frame, as described recently in GLEANINGS, has been put into the apiary for testing. It certainly has some very desirable features about it, and the bees do not gum them together nearly as bad as one would imagine, and they are in a hybrid colony at that. By the way, is it not a fact that

HYBRIDS ARE WORSE ON ACCOUNT OF PROPOLIS?

We have quite a number of half-bloods that have filled their tin rabbets level full with propolis. With this kind of bees, metal rabbets are no better, nor as good, as the plain wood bearing. I do not know, however, that I have noticed Italians propolize things up in this way. Perhaps this is *one* of the reasons why the majority of bee-keepers prefer plain wood bearings in preference to tin rests.

HYBRIDS.

Oh dear! I wish there weren't a hybrid in the apiary. It has been several years since we had so many colonies in the yard at once; and during the intervening time we have had almost exclusively Italians. Then we could work a greater part of the time without a veil; but now a veil is an absolute necessity. On hot days, when it is hard enough at best to keep cool, a veil around the head is any thing but pleasant. Perhaps I should remark, that all the hybrid colonies above mentioned had their old

queens removed long ago; but somehow those old black fellows still live, and won't die off, although their old queens were removed something like two months ago. I have felt several times as though I wanted to paddle the whole boodle of them to death, as described in our last issue, in this department, under the head of "cross bees."

CARNIOLANS.

These bees are still doing well. The hive is full, and running over with workers, and we have been giving them empty combs to give them room. Strange enough, these fellows have not attempted to swarm yet. The Carniolans we had last year would have swarmed themselves out of existence with half of these conditions of prosperity.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

GARDENING IN JULY.

ISN'T it fun? I have just come in from the fields, and I have so thoroughly enjoyed the morning that I want to tell you something about it. Just about this time of year, there is very often a scarcity of potatoes. Old ones are all gone, and the stock of new ones is inadequate. Yesterday Mr. Stevens said there was not a potato in town; and after people had been at all the groceries and found none, they came down to me. Men, women, and hotel-keepers came with long faces, to know whether I could possibly give them some potatoes for dinner. Now, you may think it is funny that I should rejoice to see everybody in trouble. Well, you know Uncle Amos did not mean just that. I will tell you why I rejoiced. Away back in the spring we started a lot of Early Puritans and a lot of Early Ohios in the greenhouse. When they were so big that they could not stay in the greenhouse any longer (they were getting so "long legged") they all laughed at me for turning my potatoes out of their warm quarters into the snow and storm and frost. There was not a bit of ground dry enough to work, except some ridges where celery had been dug, that I have told you about. We split the ridges with a plow, and made a pretense of getting mellow dirt for my greenhouse potato-plants. We set them out as best we could, with many misgivings. Some fine weather came on, however, and they turned to a rich thrifty green, and began to do nicely. Then came frosty nights, and we fussed to lay them down and cover them with fine dirt that could not well be found, the ground was so wet; but with a strong plant growing out of a whole potato, even if it does get nipped with frost it soon starts out again. Well, on this 7th day of July there were great masses of foliage, and the hard ground that had never been plowed to amount to any thing was bursting open with the potatoes underneath. We dug them, such as they were, and people went away happy, even if the potatoes did cost *50 cts. a peck*. I had a little misgiving, for I feared they might not be nice for cooking. But my wife gave us a sample of these for breakfast, that allayed all my misgivings. Early Puritans are just beautiful when cooked as Mrs. Root knows how to cook them, even if they are *not* fully grown. It takes about five hills to make a peck at the present stage of growth. But ten cents a hill (each hill representing a single potato when planted) pays us very well. Of course, we select the most mature-looking hills to dig first. The only thing I felt sorry about is that I did not start *more* potatoes in the greenhouse, and plant them in celery-ridges in just that way. At the same time we planted the potatoes in the greenhouse, we found a strip of ground that would work very nicely by turning under some rye that was about knee-high. We put peas, kidney wax beans, and corn, in this strip. I knew the peas would be all right; but it was so very early for corn and wax beans, I thought I would try only four rows of each. Well, the corn and beans had so many ups and downs, and made such a very poor growth for many weeks, that I thought I had wasted my time and pains; but just now they are yielding beautifully—I mean the beans and peas. The corn will be ready in about a week more. We get 50 cts. a peck for peas, and 10 cts. a pound for wax beans; and Mr. Stevens says that he only wishes he had four times as many. We have been getting this price for the peas for at least four weeks, and I should think for over two weeks on the wax beans. Two quite small boys pick all the peas, and two more pick the wax beans. I have now got these boys taught so they pick only peas that are just right—none of them "too thin," neither do they let any get too hard. I have also taught them so as, with my assistance, to keep just enough ahead for the demand, and no more, so our customers get them just freshly picked. The wagon leaves here at six in the morning, and then comes around for a fresh supply again at nine. So our small boys pick late in the evening, just what is wanted to start out with in the morning. Then early in the morning, before it gets real hot, they get just enough for the wagon when it gets around at nine. About this time they are tired enough to stop and rest, and by three or four in the afternoon they are all ready for work again. Our berries are picked in much the same way. There is nothing like being able to tell your customers that the peas, beans, berries, etc., have just been picked within an hour, or two hours at the furthest. We have a good careful man to look after the boys, to see that they do not get to playing, nor eating their berries, and then I get around among them three or four times a day. I tell you, I just enjoy gathering up the stuff. Besides the trade on the wagon, we sell quite a little stuff at a sort of berry-stand between our lunch-room and

counter-store. This is where we display and sell our honey also. Well, it is my privilege to gather up tempting things from the fields, and make a little display of them on this berry-stand. As we have unexpected calls for all sorts of stuff at all hours of the day, we find it exceedingly convenient to scatter baskets all over our grounds. When we have new comers, I find it a hard matter to keep them from carrying the baskets up to the toolhouse, especially nights. These market-baskets (peck, half-peck, and half-bushel) cost only 30 or 40 cts. a dozen; and it does not pay to carry them in nights, not even when it rains. Very often we have a sudden order for something to meet the trains, especially at this time of year when picnics and excursions are in vogue. If baskets are in the field, I can call from the office window to Mr. Weed, whose place is in the plant garden, and he can go to the top of the hill and call to the boys to bring up what is needed, providing baskets are where they can grab them up quickly, and set them at work. Now, when I take my morning walks, I take a basket of suitable size and gather up what peas are picked. Then I fill another with string beans from where they are picking; a third one with new potatoes; a fourth with black and red raspberries; may be a fifth with currants and gooseberries. By this time I am ready to look for a wheelbarrow. By the way, we have wheelbarrows scattered over the premises almost as plentifully as baskets. I think there are seven altogether. When I get more samples than I can carry I call to some one to meet me with a wheelbarrow.

Now, when the boys bring the stuff in from the fields, they just dump it down in all sorts of disorder. I can not teach anybody (at least I have not succeeded so far) to fix up a display of fruits and vegetables as I fix them up. First, I dispose of all partly filled baskets, by selecting a basket of proper size, so each one will be heaping full. "Heaping full" means good measure, and then you know what the Bible says about good measure. Then I put all the currants by themselves, all the raspberries, gooseberries, peas, wax beans, giving the berries the most prominence, peas and beans next, setting the potatoes on a box or stool a little lower. Before I get things fixed, a lively trade starts up, and my display is very soon disordered. When I can be spared, however, I just enjoy seeing things go off; and before any thing is out, some of the small boys that are almost always standing around (feeling sure by past experience that I have work for them) are ready to go to the fields and bring in a fresh supply. By the way, this year we are employing quite a number of little chaps at only *two cents an hour*. Mr. Weed and the time clerk concluded that they would be worth that much, even if they did play a good deal. Well, I really enjoy teaching these "two-cent" little fellows how to work and how to do business. There is a full understanding between us, that, when they prefer to be their own bosses—that is, to be free from any obligations—they can be off from duty by simply marking their time off on the slate. There is a small slate on purpose for them, separate from that used by the big men and women. Sometimes when I ask them to do something they reply, "Why, Mr. Root, I am not at work just now; but if it is some little thing you want done, I will do it, *without* charge."

Just think of the idea of these little fellows working on a salary of two cents an hour, being liberal toward myself, or toward their "boss," who employs toward 200 hands, at an expense of more than *$20.00* an hour! I mentally thank them for the example they set me; and may God help me in a like way to be liberal toward *them*, with *their* small modicum of strength and judgment. Just a few minutes ago I saw one of the younger ones with his berry-basket hitched to his suspenders in such a way that he can pick berries with both hands, instead of picking with one hand and holding the basket with the other. This reminds me that, while in Wisconsin, I saw a sort of tin box to be strapped around the waist, used by friend France's pickers, for picking blackberries. This tin box has no bottom, but it has a funnel-shaped cover. This cover drops the berries in such a way as to spread them over the top of the box, so as to have it nicely rounded. This year our berries are all picked by the hour. We like this better, because we can stop and start as the market demands, set the boys at any moment hoeing or weeding, without marking the time off or on. Besides, I think there is a better feeling among the children —less strife and jealousy—where they have regular wages by the hour. Of course, the rate of wages is gauged by the amount of work. Our strawberries have brought, during this season, from 10 to 15 cents, few if any being sold for less than 10. Raspberries have only once been down to 8 cents, and that was Saturday night. Of course, however, all of our stuff brings a better price because of being freshly gathered and delivered in tempting shape, right at the homes of the consumers. Now, in conclusion, let me say again, "Isn't it fun to be a gardener in the month of July?"

THE OREGON EVERBEARING STRAWBERRY.

Friend Root:—Will you please let us know something about the new everbearing strawberry? I got 12 last fall, and planted them in my greenhouse. They made a nice growth, and are now in my garden, full of handsome berries. They are constantly sending out more fruit-stems, but not a runner appears. I have one plant with not less than eleven fruit-stems, and the berries are fully as large as Jessies. If it is going to keep it up at that rate all summer, I should think that one plant ought to produce half a bushel of berries alone. But how can we multiply them, if they will not send out runners? Pulling the stools apart is the only way I know of; and then the question comes, "Will that not kill them?" and, when is it best to do it?

Port Clinton, Ohio, June 9. J. JOHANNSEN.

Friend J., we also had about a dozen plants in the greenhouse. They commenced sending out runners just before fruiting, and we have perhaps 40 or 50 young plants.

Like yours, our old ones are still blossoming and sending out fruit-stems. While the fruit is not as large as the Jessie, it is of very fair quality. I, too, have been getting a little excited about this strawberry. But these plants are in very rich plant ground—in fact, nearly half manure, and some other varieties of strawberries under the same circumstances are also blossoming and bearing fruit; and I presume this is caused by the very rich ground they are in, and the continual watering they receive when the celery plants and others adjoining get their heavy waterings every three or four days. In fact, a little patch of Jessies in the greenhouse is still giving us a box of berries every other day, when those in the field ceased bearing more than two weeks ago. Is it not true, that special treatment may make *any* strawberry-plant everbearing? I am sure I can not tell why yours do not send out any runners. The introducer of the plant has an advertisement in this issue, but I do not know his prices. I do not believe that dividing the stools would answer very well.

ANOTHER STRAWBERRY REPORT—80 QUARTS FROM A PIECE OF GROUND 5x82½.

Friend Root:—The strawberry-bed you saw in my yard in Boscobel, the day you arrived there, is 82½ feet long by 5 feet wide. We picked 80 quarts of as fine berries as any one ever saw, from said bed. They are the Jessie and Bubach varieties. The little boy measured one that was 5½ inches around. This bed was only eleven months old when it produced the 80 quarts of berries. You saw this bed a few days after it was set out, it being a very dry time. BENJ. E. RICE.

Boscobel, Wis., July 2.

Dear friends, here is a hint for you. After your early crops on your garden, manure the ground well, turn it under, then pulverize and work it thoroughly. Be sure to make surface-drains as well as underdrains, so that heavy rains can not beat it down solid, and in only *eleven months* you can have such a yield of fruit as friend Rice speaks of. The sight of the pretty little bed of berries took my eye at once, and I made up my mind then, that, if he *kept* them looking as nice, he would get his reward.

THE IGNOTUM TOMATO IN AUSTRALIA.

From packet received, containing 32 seeds, I was successful in obtaining 20 fine healthy plants, every one of which has proved true to name—at least, not like any thing grown here before, save Mikado, from which, I am inclined to think, this is a sport. I say this, because the Mikado was first out here; but if the Ignotum has been, I should call the Mikado a very poor sport from the Ignotum. It is very strong, and hardy in habit. The fruit is very uniform in size and shape, quite smooth, no corrugations. One tomato that I measured and weighed gave the following results. It was the finest one in view at the time. Size, 17 inches around; weight, 22½ ounces. The 20 plants yielded up to date (they are still bearing) 342 lbs. of fruit. If planted like the 20, on similar land, and the conditions the same, the yield would be just 42 tons of fruit per acre. R. PATTEN.

Binni Apiary, Cowra, Aus., May 31.

EGYPTIAN ONIONS; GROWING TOMATOES IN THE GREENHOUSE, ETC.

Mr. Root:—Can those Egyptian onions be grown under the greenhouse benches where they will receive little or no sunlight? If so, what time shall we sow the sets to have them fit for market in March and April? Tomatoes bring about a dollar per bushel in this place when they first come into market; but after they become plentiful they are slow sale at 30 and 40 cents. Now, what I wish to know is this: Why can we not have them very early by sowing the seed in a greenhouse in the month of January, or even earlier, and growing them in 6 or 8 inch pots till the middle of May? Will it not pay?

Cokeville, Pa., June 28. JOHN MAJOR.

Friend M., the Egyptian onions will do exactly what you wish; in fact, I have thought, during this past spring, they do nicer in the shade than anywhere else; that is, they are more white, crisp, and tender. The way we manage is as follows: The little sets, or onions, on top of the stalks, are put in during the present month of July. We just pick them off and strew them pretty thickly in drills as we would peas, in good rich soil. If land is plentiful, put them far enough apart to cultivate with a horse. If you wish to have more on a small quantity of ground, put them only one foot apart. They will come right up and grow, and make a very pretty show in a garden right during the fall months. Any time in February or March, when the ground is not frozen, dig them, and set them in rich soil under your greenhouse benches. The sudden warmth will make them think spring has come, and they will grow to your heart's content. Those left in the field will be a month or two later. During the past spring we have sold wagonloads of them at 5 cts. for a bunch weighing 8 oz. Those forced in the greenhouse brought 5 cts. for a bunch weighing a third of a pound. The foreman of our sawroom has a little greenhouse of his own construction. He wanted it to play with, just as I use ours to play with. The first week in July he informed me he was selling tomatoes. The tomatoes came from plants kept in his greenhouse, in pots, until they had blossoms and little tomatoes on. When the weather admitted they were transplanted into open ground, and I presume he gets as much as $2.00 a bushel for all he has now to spare. To be sure, it will pay any one who will take the necessary pains and care.

A GOOD REPORT FROM THE BUSH LIMAS.

The bush lima beans you sold me seed of are looking finely—just covered with blossoms, and loaded with pods, not quite full yet.

Chapel Hill, N. C., July 7. JULIA C. GRAVES.

TOBACCO COLUMN.

AN UNEXPECTED CONTRIBUTION TO THE WAR AGAINST TOBACCO.

A. I. Root:—As a co-laborer in the endeavor to raise the moral standard of our race, I herewith inclose five dollars. The same I desire placed to the credit of your anti-tobacco account. I have watched with interest the responses that come to

your appeal to the people to cleanse themselves of the tobacco habit; and the number you have reached far exceeds any estimate I may have made. There is little probability that the calls upon you for "smokers" will exceed your willingness to supply; but should the demand at any time seem a tax, you might not call in vain upon the writer for a little assistance. I have the honor to be very truly your friend, R. A. BURNETT.

Chicago, Ill., June 11.

Friend Burnett, may the Lord be praised for your kind donation—not because we need it, but because of the spirit it shows and the lesson it may teach. At present I hardly know what use to make of the $5.00; but the Lord will unquestionably point out a way. I suppose, of course, I may have your letter for print. I want it because I feel sure it will help in the war against tobacco—the war that is to be fought, not by might nor by power, but by the influence of the Holy Spirit.

A WOMAN WHO HAS QUIT SMOKING.

Please send Mrs. Nancy Sheets a smoker. She has quit smoking her pipe. She has started in the bee-business, and would rather do without the pipe than without a smoker. If she ever commences smoking again I will pay for smoker myself.

Fredonia, Kan. JOHN DARST.

Many thanks, friend D.; and please tell our friend Mrs. Sheets that Uncle Amos bids her God-speed in breaking away from the tobacco habit.

A YOUNG BEE-KEEPER TAKES THE TOBACCO PLEDGE.

I am now 20 years old, and have been using tobacco four years; but after reading the Tobacco Column I have decided not to use it any more. I have six colonies of bees in frame hives, and should like to have a smoker; and if you will send me one I will pay for it if I ever use tobacco again.

Goodman, Miss., May 20. W. R. TATE.

AN UNCLE AND NEPHEW UNITE IN TAKING THE PLEDGE.

My uncle and I have been using tobacco for about three months. He has quit it, and about an hour ago I chewed my last chew; and if you deem it proper, just send us a smoker. If either of us use it in any way again we will pay you for the smoker.

Stony Point, Tenn. A. D. DERRICK.

PAYS FOR THE SMOKER AFTER COMMENCING THE WEED, BUT HAS QUIT AGAIN.

I send you 70 cents to pay for the smoker that you sent me several years ago for stopping the use of tobacco. I have broken my promise; but I think more of my word than I do of the money, so I remit to you the amount promised. For nearly a year I have done without it, and now have no desire for it. I am very glad that, when we fail in our promises, we can begin again. I enjoy reading your Home talks in GLEANINGS, and hope you will continue in your good work. E. G. HOWLAND.

Manchester, N. Y., May 15.

FATHER AND SON TAKING THE PLEDGE TOGETHER.

My little son and I have been smoking only since we have been keeping bees, as we thought the smoke would quell them. Since we have been reading GLEANINGS, only a stray copy now and then, I tell him we must lay aside our tobacco, as it may seat a habit hard to leave off. For encouragement to him, send him a smoker; and we hereby bind ourselves from this date not to use tobacco in any way, shape, or form. If he or I ever go back to the habit, we will send you the price in full for the smoker. L. B. WHITTLE.

JAMES B. WHITTLE.

Cloud's Creek, S. C., Feb. 25.

OUR HOMES.

Enter not into the path of the wicked, and go not in the way of evil men.—PROV. 4: 14.

I HAVE of late said so much in regard to temptation, and the importance of avoiding at the outset, any thing that might lead us into danger and sin, that I sometimes think I ought to be ashamed of myself; and here I am taking up the old subject *again*. It may be that it is *Satan* who whispers to me now and then that a man over fifty years old, and one who has been a professing Christian for twenty years, ought to be ashamed of himself—or, rather, ought to be ashamed of *acknowledging* that he is still tempted to do evil. Perhaps the season of the year has something to do with bringing to my mind the text I have quoted. During the month of July, most of us think more or less about some sort of recreation. Our schools are closed; many of our places of business are shut down during the heated term; some of the Sunday-schools, I am sorry to say, take a vacation; and in the absence of the pastors, church services are sometimes stopped for a time. All of us think of taking things a little easier. It is true, that those who work in the harvest-field oftentimes undergo the *severest* labor of the year; but after harvesting is done, even they usually think about picnics, excursions, Chautauqua, Lakeside, the seashore, watering places, etc. These things are all right and proper in their place. But there is something sad in the fact that at such seasons so many are ready to forget their vows to God, and vows made before their fellow-men, and stray away into old sins, and get back into old temptations. Many who have been intemperate find it very hard to get past the Fourth of July. Now, to all such I would recommend the little text I have quoted: "Enter not into the *path* of the wicked." Do not even go in places they frequent. If there is any place where bad men are wont to congregate, go not there. It is sometimes urged that we should go to do them good, or go to keep down the evil. This may all be very well, if we go as missionaries, or go with that idea in view. But, beware of letting Satan deceive you. If you turn to the 4th chapter of Proverbs you will find a verse just after our text, which reads, "Avoid it, pass not by it, turn from it, pass away." If you do this, there is not very much danger. I know this by experience. But there is always danger if you *dally* with sin. Another verse, further on, reads: "For they sleep not, except they have done mischief." Many a boy, many a girl, would have been perfectly safe from temptation had they not

unwisely *chosen* dangerous places. There are streets in our great cities where it is said to be unwise for a woman or even a man, for that matter, to walk, unless it be on business. Once when staying over night in the city of New York I felt a great curiosity to just take a look at the dangerous localities. I hadn't any business there, as a matter of course; but I wanted to *see*, at least from the street, the things we have all heard so much about. Yes, I had a curiosity to see what was going on in such places in the night time. I decided that I would walk briskly, and pretend to be on urgent business, so that nobody would take any notice of me. But either I was not sharp enough, or else even a busy man is not secure from interruption. In a little time I was followed. I caught only a glimpse of the poor lost wretch who attempted to enter into conversation with me, but her voice still rings in my ear, and the hollow, mocking laugh that I heard behind me as I hurried away follows me still. Another verse reads: "They eat the bread of wickedness, and drink the wine of violence." But after the above verse comes one of such wondrous beauty, and so bright with hope, that I want to put it in right here, even if it is not in a line with my subject. It is this: "But the path of the just is as the shining light, which shineth more and more unto the perfect day."

I presume we all have this longing for something new and something different. During these July days we hunger for some sort of change. We want to lie off for a day or a week, or perhaps a month. We want to go somewhere. We want rest, and we want recreation. It is right that we should, too, dear friends, and I hope many of you who read these lines *are* having rest and recreation. Here in the factory we have been so busy for months past that no one has even spoken of a picnic or excursion or a holiday. Just now, however, we are glad to recompense these friends by telling them that any of them can take a vacation if they wish, providing, of course, too many do not go at once, and that they also make some arrangement for filling their post while absent. Our orders are all filled; however, we have quite a good many still coming and going daily. What shall we do for recreation? The children and even mamma almost always find a little fault with me because I always recommend some kind of *work*. For instance, I should say, "Have rest and recreation and fun in raising strawberries." Now, with a great many of you this would mean severe hard work. I am glad to note, however, that a great many of my readers look at it as I do—that is, where it is a change from their every-day toil. Why do I recommend these things? Well, because so many who start out to have a good time do not seem to have it, after all. It turns out like the words in Isaiah: "Wherefore do ye spend money for that which is not bread, and your labor for that which satisfieth not?" Perhaps some of us have had experience in that way. I wonder if I shall judge harshly of humanity when I suggest that recreation and having a good time suggest to many something sinful. I hope it does not to you, dear reader, but I am afraid I shall have to confess that, a great many times when I feel out of sorts, and a general lack of interest in my every-day work, my thoughts are very apt to turn toward something sinful. A man who has been intemperate, when he thinks of a picnic or a hunt in the woods, or boating and fishing, instinctively turns his thoughts longingly toward some sort of stimulant to take along with the lunch. One whose besetting sin is gambling would take along a pack of cards. Perhaps neither would propose to do any thing bad. One would say, "Oh! a little fun won't do any harm just at this time of year, when we are having a holiday." The other would suggest, "We will just play a little among ourselves, just for the fun of the thing, without any stakes." My friends, let me bid you read the 4th chapter of Proverbs. "Enter not into the path of the wicked, and go not into the way of evil men." I do not know where *your* besetting sin lies. I do not know just where you are weak, but it is pretty much the same. The only safe course is, "Avoid it, pass not by it; turn from it, and pass away." I have told you about our horse Meg that used to run away. Although it was years ago, everybody who handles her needs to be cautioned to keep a firm hold on the reins. Sometimes, after I have driven her for fifteen or twenty miles I think to myself. "Oh, well! she is too tired to run now. If the lines were thrown right down on the dashboard there would be no danger." Before long, however, I have been ready to change my mind. Even after she has been driven *twice* fifteen miles I have seen her start with as much strength and suddenness as if she were right fresh from the stable, or as if she had not been used for a week. And it is so with Satan and sin. Do not console yourself with the idea that you are too weak with hard work during these hot days to be in danger of evil suggestions. Do not delude yourself. Satan is on the alert, and is watching for just such opportunities. Physical weakness and exhaustion count as nothing when *Satan* has once got hold of the reins again. Before you know it, almost before you have time to say, "Lord, help," you are swept off your feet out into the stream. Keep clear of dangerous paths. Choose wisdom and not folly. Never mind if you are tired and weary. Better wear out your shoes—yes, better a thousand times wear out *yourself*, than to get back into the hands of the evil one.

Now, notwithstanding I do not take up many of the ordinary amusements and recreations, I am still one of the greatest fellows for something new and something exciting that you ever knew. If I can not have some variety in the routine of every day's duties, I am not satisfied. Nay, further: I am hardly satisfied unless I can explore some *unexplored* region, more or less, every day. As a matter of course, every little while my explorations run into Satan's domain. How can I tell? There is no difficulty, dear friends, in deciding. The

one who is constantly seeking wisdom and guidance from *on high* will always be told very quickly when he is sinning against God or against his fellow-men. Now, when my enjoyments are of that nature that make me feel even just a *little* bit guilty, this sense of guilt constantly mars the enjoyment. The little prayer I have told you of, "Lord, help," begins to ring with its warning note. When my pleasures and enjoyments are of such nature that I can freely ask God's blessing on them, it gives a new and pure sense that I can hardly explain. But you know how it is yourself. When I am out among my strawberry-plants, say at the close of the day, between sundown and dark, I often say to myself, "Thank God! thank God! There is nothing wrong or wicked in being happy with these gifts that come directly from his hand." And this reminds me of a single sentence in a letter just received from friend Terry:

Those Haverlands yielded at the rate of more than *$1000 per acre.* T. B. TERRY.

Hudson, O., July 8.

Now, it is not the *money* that friend Terry is after, that makes him rejoice at this result, but it is because of the possibilities that he sees along the line where he is making discoveries. It is because he sees plainer than ever before that he has made no mistake, and that his convictions were right.

There is another line of temptations that beset and trouble and worry a great many of the friends who come to me, and it may get in and mar the enjoyment of any kind of recreation—yes, even strawberry-raising. The temptation I allude to is the one of *unwise expenditures*, or *extravagance*, if I may so term it. Some of you who read these pages may say, "Well, I am going to have my recreation as Bro. Root does, in raising strawberries." He may commence by buying a piece of ground he has no right to buy; or he may take time that belongs to his employers. He may purchase *manure* unwisely. He may finally order a *great lot* of strawberry-plants (of A. I. Root), when he could have got a *few* near home to much better advantage. If there is any class of sufferers that I feel sorry for from the bottom of my heart, it is those whom Satan tempts to pay out their money unwisely as fast as it gets into their fingers, and sometimes a little faster. Do not mar your happiness in this line, dear friends. My first experiment with strawberries, and the one I think I enjoyed the most, was in taking some old dried-up plants during a drouth in July, and giving them water until their dried-up runners revived and put out new leaves. I did most of the work between sundown and dark, so it cost little or nothing. Then I wheeled manure on a wheelbarrow from a place where it was doing no good, to make a mulch. With this start, and without buying any plants at all, I produced the finest crop of strawberries, I believe, I ever raised. Of course, I did not know what variety I had got hold of; but that did not matter very much then. Now, when you can use something for recreation and enjoyment that costs us nothing, and does not encroach upon anybody else, you can truly rejoice. A little beginning can be made in almost all of these rural industries in just the way I have indicated; and when we are learning to love plants or domestic animals, and are led through them to look up in *wonder* and *joy* and *praise* to the great God above, we are in a measure *safe* from Satan's allurements.

I now want to refer to the text about the Holy Spirit, in my talk of June 15. I am still praying for the Holy Spirit according to the promises of Christ Jesus the Son of God; and something a little surprising in regard to this matter of temptation has come to me along this line. One who is praying for the Holy Spirit is not likely to fall into temptation; for the attitude of heart that would prompt one to pray for the Holy Spirit would be very sure to crowd out thoughts of evil. The trouble is, then, that we get into an attitude of heart where we do not *want* the Holy Spirit—where we rather excuse ourselves and turn to the pursuit of something else. In this attitude of heart we are in great danger of falling into Satan's hands. The gift of the Holy Spirit crowds out and keeps away every thing evil, and it is this that makes it the greatest of all God's gifts. We read in the first Psalm, "Blessed is the man that walketh not in the counsel of the ungodly." When we are busy with something good we are not likely to be led away by something that is evil. With the Holy Spirit in our hearts we shall be constantly prompted toward acts of kindness and acts of mercy, and these promptings should keep us so busy that we shall have no time and no taste or desire to join in with those whose works are evil. And since I have been praying for the Holy Spirit, my busy days seem to be my happy days. I greatly enjoy being what I have been mentally calling myself—a "connecting link." I do not mean the connecting link that Darwin sought for and did not find, but a connecting link in a helpful way. Were you ever out in a field with a plow or cultivator, and horse and whiffletree, but could not go on with your work because you lacked a simple connecting link? Sometimes a piece of harness is made to do duty in default of something better. A clevis, if it is on hand, makes a good connecting link; and I have often declared that I would have clevises of different sizes hung up in the tool-house, so that, when one gets lost or broken, an extra one might save time and vexation. Well, I have been happy in making myself a connecting link in the machinery of every-day life. Two men were drawing a heavy burden, during a hot July day. The burden was too heavy for them. I glanced out of the window and saw a man approaching them from an opposite direction, with a horse all harnessed, ready to hitch on to some vehicle. I remembered a whiffletree standing against a post in the tool-house. If the whiffletree could be on the spot when the horse passed the two men with their burden, the horse would do easily what they were doing with difficulty. If I should call a boy, he would not understand where the whiffletree was, and the

man with the horse would be gone. By going downstairs with a rush, and through the apiary on a run, I knew I could get the whiffletree at the appointed spot before the horse got out of hearing. Nobody was astonished to see me go downstairs as if the house was on fire, for I often do it. The bees did not sting me as I rushed among their hives, for very likely they have often seen me do it. The men looked their thanks, even if they did not say any thing, as old Charley walked off with the burden easily.

Now, in our busy place of business, by keeping my ears and eyes open, I can, a great many times a day, make myself a connecting link in just that way. I presume a great many of the friends think I just *happened* to be on hand with a whiffletree, or that I just *happen* to hear the whistle of the man who drives the wagon with the berries. But there was no "happen" about it. My ears have been sharpened, I hope and believe, under the influence of that little prayer for the gift of the Holy Spirit, and it has made me more wideawake, and keener to the needs and wants of those around me, I hope. And I hope, too, it has made me kinder and more forbearing. Now, please do not, any of you, say that I am telling these things because I want to boast of what I have done. I boast not of *myself*, but of the *Holy Spirit* that is promised as a free gift to all and every one of you. Some of you are wanting to know what you can do for Christ Jesus. Some of you want to know what you can do for your fellow-men; and some are wanting to know what they can do to earn a livelihood; and others, I hope, are wanting to know what they can do to keep themselves busy, that they may not want to go into the path of the wicked, as in our text to-day. Dear friends, that promised gift of the Holy Spirit will supply all these wants. But while you are praying for it, please remember that you *can not* "enter into the path of the wicked" nor "go in the way of evil men;" for if you do, *after* such a prayer, you would not be consistent and honest; therefore, as I have said, is *prayer* a safeguard. Now, when you go off for your summer vacation, or when you go to picnics or on an excursion, or take a holiday, and you want to have a good time and a happy time, pray first for that Holy Spirit I have been telling you about, and then enter *not* into the path of the wicked, and go *not* in the way of evil men.

The above was dictated late Saturday evening. It is now Monday morning. Monday always brings a burden of cares. It seems harder, because I have been out of the harness for a little while, and it takes a little time to get the harness adjusted and the burdens fairly shouldered. Now, please do not think I am complaining. The harness is a grand and glorious one; and when I am bearing the burdens for Christ's sake, I am not only proud of them, but *happy* that I may bear them. Almost in the outset I found a grand place for making myself a connecting link, as I have been telling you. The foreman of one of the rooms sent word that he would prefer to resign his place rather than to have "so and so" work there any longer. "So and so" declared with equal positiveness that it was by my express orders that he should go to work Monday morning in that very room. Each one was full of complaints of the other. My first impulse was to dismiss all connected with the disturbance. It is now our dull season, and we could spare half a dozen, without minding it. But I said nothing to anybody, but took a turn in the open air, and prayed for that gift of the Holy Spirit which is promised. That Spirit told me at once that I should feel very badly if I dismissed these friends with their hearts full of jealousy, fault-finding, and evil. I thanked God that I had not acted upon the impulse of the moment. One of the parties is a professor of religion, and I had a big hold on that. As I plead with him and quoted texts, his string of complaints became shorter and feebler; and he finally admitted, with tears in his eyes, that it really was the lack of Christ's spirit that brought the present trouble. His comrades were not professors; but I reminded him that it is our duty and our privilege to lead them to Christ; and yet how far—oh, how very far away we were from it!

As I caught a glimpse of the bitterness in the hearts of all concerned, it seemed to me that it would need not only a long "connecting link," but one of *mighty* strength, to unite the two parties. But, dear reader, the love of Christ can bring together the bitterest enemies the world ever knew. It can bridge over chasms that have their outgrowth in years. Satan can be routed, and the love of Christ be implanted instead, oftentimes, if even only *one* of the parties is a professing Christian. Now, then, suppose I had hastily dismissed all who were quarreling. As a part of them proposed to dismiss themselves, all I should have had to do would be to assent. I can not tell you how glad I am that I did not assent. Had I done so, the feeling of bitterness would have extended to myself; and my chance of leading them to the Savior would have been passed by, perhaps for years to come. As it is, all feel kindly toward me, and I am sure that at least *one* of them will give me a hearty co-operation in any thing I propose, and, in fact, the little pleading I did for Christ Jesus has brought me nearer to that one than I have ever been before; and as I pen these words, dear reader, I rejoice and feel exceedingly happy to think of the new bond of friendship and love between myself and that one—to think of the *strong* connecting link for Christ Jesus, where there might have been only bitterness.

THE NEW WATER CURE.

SOMETHING FROM ONE OF OUR DOCTORS, AND ALSO A KIND WORD FROM THE OTHER SIDE.

BEFORE dismissing this matter, I wish to give a couple of letters selected from a large number on the subject. The first one is from one of our regular practicing physicians:

Mr. A. I. Root:—You give the doctors a punch in GLEANINGS of July 1st for being "perfectly silent on this great discovery" as you term it. Now, I think I speak the sentiment of a large majority of the medical profession when I deny the charge by saying we are not silent, but "speaking out in meeting" day and night, the world over, and because we do not parade our wares in public, and advertise in the popular journals and daily prints, and discuss "the Great Discovery," which is as old as Hippocrates, and has been used by physicians from that day down to the present, you must not conclude that we are *silent* and *disinterested* spectators, or afraid of diminished rations of "bread and butter," as Dr. Hall is pleased to insinuate, in case the "Great Discovery" comes into general use, and "doctoring" is carried on "without medicine." We report remedies and the general treatment of diseases, and special cases, to each other, through the medical journals, the only proper vehicles for such communications. "A little knowledge is dangerous;" and while you are reporting your "Great Discovery" to your 10,000 readers you should point out the pathological conditions to which it is applicable, as well as the great danger that would result from its improper use. All remedies are relative agents—relative to the pathological conditions existing—and all good remedies are dangerous if not rightly used; and this one which you extol so highly, and recommend so indiscriminately, caused the death of a lady in this city, in the convalescence of typhoid fever, although used under the direction of a skilled physician. Now, you seem to think our keeping still is at least suspicious, and would like us to appear before the public and prove our innocence to the entire satisfaction of all your readers. You have asked the question yourself, and we patiently await the verdict. Our evidence is before the world, and we submit the case without argument.

J. A. SCUDDER, M. D.

Washington, Ind., July 7.

Very good, Dr. S. I hardly need say that I believe you are right in nearly every particular. Any thing that comes up, having a tendency to spoil our faith in the family physician, tends toward danger and evil. I have, however, received so many very kind letters from those who have very great faith in Dr. Hall's remedy, that I thought best to submit one of these also:

Mr. Root:—I noticed your editorial in GLEANINGS for May 15, and I wish to say I think you have done a great wrong to perhaps hundreds of people. I will explain. If I had read your editorial before I had purchased the secret I should never have bought it, for the reason I have such confidence in your criticisms; but I have practiced the treatment, and it has saved me a great deal of sickness and money, and I would not sell it again for $1000. You say it is well known to our doctors. If that statement is true, why did they not prescribe the same for me? I have had several doctors treat me during the last 20 years for what they called "inaction of the lower bowel," and every little while I would get bilious and have a sick spell; and the nearest anybody ever came to prescribing that treatment was one doctor who told me to take one of those five-cent glass syringes and inject a gill of *cold* water. Now, can you not see that there are others to whom the treatment would be just as beneficial as it is to me, and that your editorial will for ever deprive them of that which, if they had, they would not part with for any amount of money? therefore you have done them a great wrong, saying nothing about whether you wrong Mr. Hall or not. You say Dr. Hall claims it was revealed to him by the Almighty. I can not find any such statement in the pamphlet, in the light that your editorial gives it, any more than you claimed that God revealed that spring to you there by the windmill; and I believe both of you in your finding the knowledge of the spring and the secret.

Another thing, Mr. Hall does not claim that the injection was a discovery, but that the retaining of water after having had a thorough evacuation was, and I most heartily agree with him. And even admitting that it is an old remedy, is he not a benefactor by bringing it before the public? and is it not worth $4.00 to any family? Do you not bear witness that it is "valuable"? and would you have known it if it had not been sold for $4.00?

And now, Bro. Root, just one thing more: Two years ago this village had an epidemic of meningitis. Four of my children had it. *Two died*, and I believe before God that this treatment would have saved my boy's life. If you are acquainted with the disease, you know the first and main thing is to get a movement of the bowels; and as they are taken with vomiting, it is impossible to give physic. Could I not with this secret have done better? In closing I will say my heart is full because I think you have done wrong, and a great wrong, to your fellow-men. I am not selling, nor interested in the sale of it, nor in Mr. Hall. ADOLPHUS NEWTON.

Norwich, N. Y., June 6.

EDITORIAL.

But the fruit of the Spirit is love, joy, peace, longsuffering, goodness, faith, meekness, temperance; against such there is no law.—GAL. 5: 22, 23.

UNTIL next issue we will pay 5c each for the April 1 and May 1, 1890, numbers of GLEANINGS.

DECLINE OF BEESWAX AND FOUNDATION.

SINCE the rush of the season is over, the price of beeswax has eased a little, and we are able to cancel the last raise of 3c. per lb. Price of beeswax will be same as on the cover of last issue. Heavy brood fdn. 45c. per lb., and at same rate for other grades.

ASTONISHED BEES.

WE clip the following from the *Country Gentlemen:*

Among other things struck by lightning this summer was a bee-tree near Cuesta, Ga.; bees and honey were scattered in every direction, but the bees couldn't hit back.

ANOTHER WARNING NOTE.

IN spite of our caution on page 470, we have received two or three more samples of foul brood by mail and one large one by express. The one last mentioned came in the absence of the writer (E. R. R.), and the receiving clerk, not supposing the box contained any thing so dangerous, of course opened it. It being very hot weather, some of the honey had melted and run through, when my attention was called to it after my arrival home. I took it down in front of the boiler-arches,

carefully examined it, and found it was the genuine foul brood. Fortunately it came during a great yield of nectar, and of course there were no robbers. Had there been, we might have had a repetition of our foul-brood troubles. I tell you, friends, it is a most serious matter. Sending foul brood by mail or by express can not help placing in jeopardy any apiary within whose immediate vicinity it may come. The instructions and description of foul brood, given in our A B C of Bee Culture and in Prof. Cook's last Bulletin, are so complete and full that our friends ought to be able to properly diagnose any case of the real trouble. Bro. Newman, in the *American Bee Journal*, has likewise informed his readers, and we hope the other bee-journals, if they have not already done so, will send forth a warning note. Our friend wished us to send it to Prof. Cook, after examining it. Instead of complying with these instructions I gave it a "hist" into the boiler-furnace. It is like sending dynamite or nitro-glycerine through the mails. While in the case of foul brood, human lives are not jeopardized, yet *human interests* are so most seriously.

Either our friend above is not a reader of a bee-journal, or else he reads them so carelessly that he overlooked the former warnings. If he had been a follower of our pages a year or so back, he could not have been mistaken as to what he had in his apiary.

Later.—After the above was in type I noticed that Bro. Jones, of the *Canadian Bee Journal*, thinks it necessary, for proper diagnosis, that samples of the infected brood be sent to the proper persons. With the clear and minute descriptions that have been given of the symptoms of the disease, I still think that a person of average intelligence could very easily diagnose his own cases.

HONEY AS FOOD.

How many times I think of Josh Billings' quaint speech—"What is the use of knowing so much, when so much that you know ain't so?" I am reminded of it just now in the confession I have to make. A short time ago I gave you my experience in using honey as food, and I was quite emphatic in saying that it gave me a headache when maple syrup would not. Well, a few days ago I took a notion to eat quite liberally of the new alfalfa honey, spoken of in last issue. Quite to my surprise I felt unusually well during the whole afternoon. Then I ate still more for supper, and good old dame Nature pronounced it tiptop and called for more. Since that I have been eating quite liberally, with the best results; and when I found that alfalfa honey agreed with me perfectly, I substituted good well-ripened basswood honey (extracted, of course), with the same results. Therefore I wish to ask my good friend Cook to let me take back at least a good deal of what I said about honey being unwholesome. In the latter experiments I ate it with good nice bread and good nice butter; and I believe that, in my former experiments, at least several times I ate honey with hot biscuit or something of that sort, and I am afraid I charged the honey with something that belonged to the hot cakes that went with it. Perhaps you think I am taking considerable space for a small matter; but it is quite a serious matter when the editor of a bee-journal says that honey is not good food, even if he does mean to say, *so far as his personal experience goes*. Very likely a kind of food that would at one time induce nature to protest, might at some other time prove to be exactly the thing she wants and calls for. Shall we not all be slow in coming to positive conclusions?

SPECIAL NOTICES.

OF INTEREST TO AUSTRALIAN READERS.

Goods shipped to Australia have had the option of three routes: Across the continent to San Francisco, thence by steamer, which is the quickest and most expensive route; by steamer via New York and England, and via sailing vessel from New York direct, the last being the cheapest and also requiring the longest time, usually about five months from New York. We have just received advice of a steamer, "Prodans," to sail a month hence direct for Adelaide, Melbourne, and Sidney, and expected to make the trip one way in fifty days. We are assured that the rate will be low, less than half the cost by steamer via England, and we sincerely hope, for the benefit of our Australian correspondents, that the venture may prove successful and be continued.

EGYPTIAN ONION-SETS, CROP OF 1890, ETC.

Ours are now ready to gather, and, like the strawberry-plants, the quicker you get them into the ground the better growth they will make before winter time. Price 10 cts. per quart, or 75 cts. per peck. If wanted by mail, add 10 cts. per quart extra. We shall not be ready to send out strawberry-plants before about the first of August. During the coming fall we shall offer for sale only four kinds—Jessie, Bubach, Haverland, and Gandy. We drop the Sharpless for the Jessie, and the Jersey Queen for the Gandy. We mention this, as others may wish to know our preference among all the new sorts that are offered. The Gandy is the one, it will be remembered, that has been advertised as the "first season's" strawberry. We shall also test quite considerably the strawberry known as Michael's Early, also sometimes called Osceola. This seems to be about the best early strawberry.

MOTTOES AND LETTERS IN COMB.

You can add much to the attractiveness of your fair exhibit by having the bees work out in white comb, letters forming your name or some motto. It will be the means of attracting many more eyes than would otherwise notice your display. We are again prepared to furnish letters as we did a year ago, and that you may know fully what we did agree to furnish we copy from last year's notice:

We have a full set of pattern letters to work from, and they are of such a size that three will fill an 8-section wide frame, the openings forming the letters being about 7½ in. high and 5 in. wide. *M* and *W*, of course, are wider, and *I* narrower. The letters are of the following pattern:

FAIR, 1890.

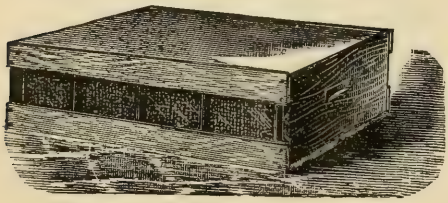
The price will be 10 cts. per letter or figure. With thin foundation inserted, 15 cts. per letter or figure. In ordering, if you will write the letters in the order you want them, we can make 3 letters in one piece, just right to slip into a wide frame. Or if you don't happen to have a wide frame, simply tack a bar on top, to suspend it from, and hang it in the hive without a frame around it. The 4 figures, 1890, will go in a frame. To make the letters, we simply tack two ⅞-inch boards together, mark the letter, and jig it out on a scroll-saw. To put in the foundation, separate the boards, lay a sheet between, and tack them together again. We make the letters large, because the bees will work in them more readily, and they are much more conspicuous when filled.

PREMIUM OFFER.

To those intending to make an exhibit, and who will agree to distribute judiciously the circulars we will send, we will furnish free one letter or figure for each dollar's worth of goods ordered, if the order amounts to $4.00 or more. If foundation is inserted in each letter, we will furnish 2 letters for every $4.00 worth of goods ordered.

Will tell you more about our fair offers in next issue.

HONEY PACKAGES FOR COMB AND EXTRACTED HONEY.



24-LB. SINGLE-TIER SHIPPING-CASES.

Cases holding a single tier of sections are now much preferred by the large wholesale dealers in honey. They are much lighter to handle, and, in consequence, are much less liable to breakage during shipment. Moreover, if any of the top row of sections, in the double-tier case, become daubed, the lower ones will become soiled with the drippings.

PRICE LIST OF SHIPPING-CASES.

	Nailed, with glass, each.		In flat 1	10	100
48-lb. double-tier shipping-case.....	$ 35	$ 20	$1.80	$16.00
24-lb. " "	30	16	1.40	12.00
24-lb. single-tier "	25	16	1.40	12 00
12-lb. " "	15	10	80	6.00

PRICE LIST OF GLASS.

Size of glass.		Prices. Per sheet	For 10 sheets	Per box of 50 ft.	No. of sheets in box
8 x 13½ "	24-lb. double-tier cases	8c	60c	$2 50	64
3 x 18 "	24 lb single " and 48-lb. double-tier cases.	3c	25c	2 50	133
2 x 18 "	combined crate	2c	20c	2 50	200
2 x 9 "	12-lb. cases.....	1c	10c	2 50	400

For further particulars see page 22 of our catalog.

GLASS HONEY TUMBLERS AND PAILS.

Glass Tumbler. Nos. 788 and 789. Screw-top Pail. Nos. 775 to 778 Oaken Bucket Pail.

TABLE OF PRICES—NO CHARGE FOR PACKAGES.

Please order by number and name, and give price.

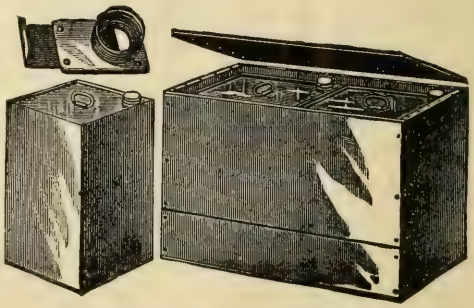
Number and Name.	Capacity.	Price. Ea.	10.	100	Barrels. No.	Pr.
No. 788, ½-lb. tumbler.....	10 oz.	3	25	2 25	250	$5 00
No. 789, one-pound tumbler.....	16 oz.	8	30	2.75	200	5 00
Nos. 788 and 789, nested.....		6	50	4 70	200	8 70
No. 775, ½-lb. screw-top glass pail.	11 oz.	5	40	3.50	250	7 30
No. 776, small pound screw-top pail	14 oz.	5	42	3.75	200	6.60
No. 777, large pound screw-top pail	17 oz.	6	52	4 75	150	6 60
No. 778, 1½-lb. screw-top glass pail.	24 oz.	7	65	6 00	100	6 00
½-lb. Oaken Bucket pail..	10 oz.	5	42	3 75	200	6 50
1 lb. Oaken Bucket pail.....	16 oz.	5	45	4.30	150	6 00

In lots of 5 bbls., any one or assorted kinds, 5% off.

GLASS JARS FOR EXTRACTED HONEY.

	Price, Each	Doz.	Gross
2 lb. square flint jars with corks.....	7	75	$7 00
1 " " " " "	6	60	5 50
½ " " " " " "	5	45	4 25
5 oz., or dime " " " "	4	35	3 25

One and 2 lb. in ½ gross boxes. Dime and ½ lb. in gross boxes. Shipped direct from Cincinnati, Ohio. If shipped from here with other goods add 25c per box for freight from Cincinnati here. Without corks 75c per gross less on 1 and 2 lb.; 50c less on others. In lots of 5 gross at a time, 5 per ct. discount.



SQUARE CANS FOR SHIPPING EXTRACTED HONEY.

The above cut shows our favorite package for shipping extracted honey. The oblong box contains two square tin cans as shown, each can holding 60 pounds of honey. The whole package is the most complete thing we have ever seen for holding and shipping 120 lbs. of honey or over. There is no shrinkage and consequent leaking, no taint to the honey from wood as is so frequently the case with barrels and kegs. The cans being made square economize space and are easily boxed. A stick, one inch square, is laid over the tops of the cans, before the cover is nailed. The bee men of California who produce from 20 to 100 tons of honey annually, use these cans exclusively.

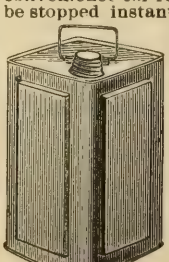
1 box of two cans.....	$ 75	1 can, boxed singly	$ 45
10 " " "	7 00	10 " " "	4 20
100 " " "	65 00	100 " "	40 00

With a large 4-inch screw-cap as well as small one, 5c extra each can. These are convenient for digging out candied honey.

We can ship these 60 and 12 lb. sq. cans from St. Louis, Mo., when desired, at same prices.

We can furnish, when desired, a honey-gate to fit the screw caps to the foregoing cans as shown at the upper left hand corner of cut. This is a great convenience for retailing honey, as the stream can be stopped instantly. There is no danger of filling small honey-receptacles to overflowing.

Price 15c. each; $1.25 for 10; $10 per 100.



ONE - GALLON (12-LB.) SQUARE CANS, 10 IN A CASE.

We have made arrangements so that we can furnish 12-lb. sq. cans, same style as our regular 60-lb. cans, 10 in a box. These will be shipped direct from St. Louis or from here, at the following prices:

One box of ten 12-lb. cans.....	$1.50
10 boxes at $1.40	14.00
100 boxes at $1.30.....	130.00
100 cans in a crate without boxes..	12.00

4-qt. 3-qt. 2-qt. 1-qt. 1-pt.

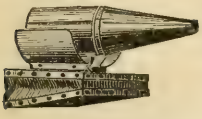
A NEST OF 5 RAISED-COVER PAILS.

Post.		Each.	Price. 10	50	100	Weight of 50	100
50	Nest of 5 pails as shown.....	40	3 60	16.50	32.00	200	400
	Nest of 3 smaller pails.....	20	1.75	8.00	14.50		175
	Nest of 3 smaller pails, painted, and lettered PURE HONEY.	30	2.75	13.00	25.00		190

For other honey packages and further particulars see pages 22 and 23 of our catalog.

A. I. ROOT, Medina, Ohio.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...$2.00
Conqueror "	3 "	"	... 1.75
Large "	2½ "	"	... 1 50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow ")	2 "	"	... 1 00
Little Wonder,	1¾ "	"	... 65
Uncapping Knife.....		.....	.. 1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,

21-20db NEW LONDON, Waupaca Co., WIS.

☞In responding to this advertisement mention GLEANINGS.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Ten young hybrid Italian queens for sale at 25c each, if you take five or more you may have them at 20 cents each. J. H. JOHNSON, Middaghs, Northampton Co., Pa.

30 good hybrid queens for sale raised under the swarming impulse, 30c each, or 4 for $1.00. J. M. KINZIE, Rochester, Oakland Co., Mich.

I am now requeening my apiary, and will have about 25 queens to spare, mostly Italians with just a slight dash of black blood; any one sending provisioned cages can have them at 25c for one, or 5 for $1.00. LUTHER PURDY, Killbuck, Holmes Co., O.

25 mismated Italian and albino queens for 20c each; 12 for $2.00, or 25 for $4.00. I guarantee safe delivery. J. W. TAYLOR, Ozan, Ark.

50 hybrid queens for sale at 25c each; 5 for $1.00. J. A. GREEN, Dayton, Ill.

Five fine hybrid queens 25c each; or the lot for $1.00. WILLIAMS BROS., Burdick, Porter Co., Ind.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to

4tfdb **CHAS. DADANT & SON,**

HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS, TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON, Cincinnati, Ohio.*

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

THE CANADIAN

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.

☞Please mention GLEANINGS. 6-11db

☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To exchange Italian bees in portico L. hives for a good set of tinner's tools.
13tfdb J. A. BUCKLEW, Warsaw, Ohio.

WANTED.—To correspond with parties having honey, potatoes, peaches, apples, etc., for sale. Prompt attention given to all letters.
EARLE CLICKENGER, Commission Merchant,
15-16-17d Columbus, O.

WANTED.—To exchange young Canary Birds, in pairs, and White Leghorn chicks, in trios, for Italian bees or queens. Address
I. FERRIS PATTON, Lawrenceburg, Ind.

WANTED.—A position as apiarist in western Louisiana. Answer at this office.

WANTED.—Second-hand section machine. Give price, and time in use. C. P. BISH,
15-16d Grove City, Mercer Co., Pa.

WANTED.—1000 lbs. of nice white clover bees' honey, in 1-lb. sections. Will pay cash, or exchange supplies for the apiary. Address with price, A. D. ELLINGWOOD, Milan, N. H.
14-15d

WANTED.—I want a situation in a Cuban apiary. 12 years' experience. Reference, C. F. Muth & Son, Cincinnati, Ohio. Address A. CARDER,
15-16d Hebron, Boone Co., Ky.

WANTED.—To exchange a Shipman oil engine, one horse power, in good order, for 1000 pounds of white extracted honey, or offers.
15tfdb F. A. SALISBURY, Syracuse, N. Y.

WANTED.—To exchange good colonies of bees in standard L. hives, for a first-class gold watch. Will give good trade for watch that suits me.
15tfdb J. V. CALDWELL, Cambridge, Ill.

WANTED.—To exchange warranted queens for foundation or offers. W. C. MAUSER.
Lewisburg, Pa.

WANTED.—I will exchange sewing-machines, new, and fruit-trees, for honey. Address
15-24 E. PETERMAN, Waldo, Wis.

WANTED.—To rent for cash or sell farm of 60 acres, five miles from this city. About 25 acres in fruit. 13 acres of strawberries, 3 acres of raspberries, 3 acres of blackberries, 1 acre of grapes, 5 acres of apple, peach, and plum trees. Balance of land No. 1 for marketing purposes. Buildings and other improvements in fine shape. Reason for selling, too many irons in the fire.
EARLE CLICKENGER, Com. Merchant.
15-16d Columbus, O.

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.
J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.
☞In responding to this advertisement mention GLEANINGS.

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. **THOS. G. NEWMAN & SON,** 246 East Madison Street, - - CHICAGO, ILLS.
☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The Southwestern Wisconsin Bee-keepers' Affiliated Association will meet Oct. 1, 1890, in Platteville, Wis., at the residence of E. France, to commence punctually at 10 A.M., sharp. There will be a large turnout of prominent bee-keepers of the State. A question-box, free to all, in which any subject you wish discussed can be presented and answered. Let every one be on hand and bring in his report for 1890, starting at spring count, or May 1. There will be blanks sent to each member for this purpose, in due time, by the secretary.
Boscobel, Wis. BENJ. E. RICE, Sec'y.

HONEY COLUMN.

CITY MARKETS.

MILWAUKEE.—*Honey.*—The demand for honey is good for this season of the year. The supply of old crop is fair, equal to the demand. Can quote:
White, 1-lb. sections, choice, 13@14; white, 1-lb. sections, medium, 12@13; dark, 1-lb. sections, good, 10@11; white extracted, in bbls. and half-bbls., 7@7½; white extracted, in kegs and tin, 7½@8; dark extracted, in kegs, bbls., and tin, 6@6½. *Beeswax*, 28@30. A. V. BISHOP,
July 14. Milwaukee, Wis.

COLUMBUS.—*Honey.*—Market bare of merchantable stock. The crop in our own apiary being a failure, the same being the case in the surrounding country, from which we draw our supplies at this season, shipments from a distance would meet with ready sales at 17@18 cts. for fine white clover.
July 23. EARLE CLICKENGER, Columbus, O.

BOSTON.—*Honey.*—No change in honey or beeswax. BLAKE & RIPLEY,
July 23. 57 Chatham St., Boston, Mass.

SAN FRANCISCO.—*Honey.*—Honey quiet. Extracted, 5@5½; comb honey, 11@12½. *Beeswax*, 21@23.
SCHACHT, LEMCKE & STEINER.
June 14. 16 & 18 Drum St., San Francisco, Cal.

ST. LOUIS.—*Honey.*—New crop comb, 1-lb. sections, 13½; extracted and strained, in cans, 8@9; extracted and strained, in bbls., 6½. *Beeswax*, prime, 27. Demand fair. D. G. TUTT GROCER CO.,
July 19. St. Louis, Mo.

DETROIT.—*Honey.*—No new honey offered, and no old left to quote. *Beeswax*, 26@27c.
July 18. M. H. HUNT, Bell Branch, Mich.

WANTED.—Comb and extracted honey. State price and quantity. WALTER S. POUDER,
Indianapolis, Ind.

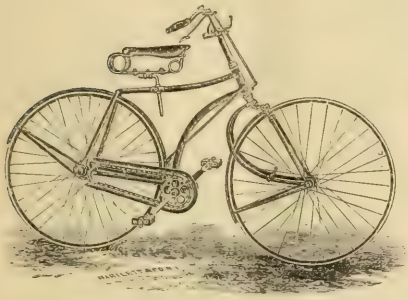
FOR SALE—2000 lbs. of extracted honey, in 60-lb. tin cans. Send for samples and prices.
LEINIGER BROS., Douglas, O.

FOR SALE—2500 lbs. extracted white honey, in 60-lb. cans, @$5.00 per can F. O. B. R. L. TUCKER.
15-16d Nevada, Mo.

FOR SALE—3000 lbs. comb and extracted honey, A No. 1. Address J. B. MURRAY, Ada, Ohio.

Please quote honey. Can use 2000 lbs. nice.
THE DODGE GROCERY CO., Dayton, O.

VICTOR BICYCLES



Will carry you up hill easier and down hill faster than any others you ever mounted.

ALL INTERCHANGEABLE.
ALL HIGH GRADE.
ALL RIGHT.

Send for Catalogue.

OVERMAN WHEEL CO., Makers, Chicopee Falls, Mass.

☞In responding to this advertisement mention GLEANINGS.

KIND WORDS FROM OUR CUSTOMERS.

The bee-hives arrived all right, and we are much pleased with them. G. GARVER.
McVeytown, Pa., June 9

PROMPTNESS.

The queen ordered yesterday by telegraph was received to-day, safely. Accept my thanks for your prompt fulfillment of my order. E. E. BEWINGER.
Pittsburg, Pa., July 22, 1890.

WELL PLEASED.

I received the queen in good condition. I am well pleased with the whole transaction. Accept thanks. I am so well pleased that you will find another order accompanying this.
Wawaka, Ind., July 22, 1890. T. J. MAWHORTER.

GLEANINGS GOOD FROM COVER TO COVER.

You may continue GLEANINGS until you are told to stop, and that will be when I am unable to keep bees or earn enough to pay for it. GLEANINGS, from cover to cover, is charming for the enthusiastic apiarist, and always a welcome visitor with me.
Arden, N. Y., July 19, 1890. J. G. EARL.

GLEANINGS A GOOD INVESTMENT.

I am very much pleased with GLEANINGS, and will say that its cost has many times returned to me in the knowledge of facts contained therein. No investment I ever made returned me so much on first cost as GLEANINGS. G. WIEDERHOLD.
Yonkers, N. Y., June 20.

LIKES THE DOVETAILED HIVE.

I received the 20 Dovetailed hives the 27th, all O. K. They were packed very nice. I am well pleased with them. All who have seen them say they are the right kind of hive to use.
Naples, N. Y., Apr. 30. W. H. ELLERINGTON.

BEES SAFELY TO SOUTH DAKOTA.

The bees you shipped me July 10th arrived on the 14th. They were just what I wanted, and in good shape. I find that it pays to order from parties that are responsible, even if it does cost a little more, as I have ordered from several parties, and got a bad muss, and from some I did not get any thing—not even my money back; yet I thought I would save express by getting them nearer home, but not so. J. W. CHAPIN.
Winfred, S. Dakota, July 15.

GLEANINGS A GOOD ADVERTISING MEDIUM.

The orders for merchandise, foundation, and labels, have been duly received. Every thing was according to list, and, as usual, quite satisfactory. We can very heartily join our testimony to that of others, that GLEANINGS is a remunerative advertising medium. A few years of prominence before the public is necessary for a wide business.
Westfield, Mass., July 11. F. H. & E. H. DEWEY.

AN A B C SCHOLAR'S EXPERIENCE.

When I was a boy in my old Kentucky blue-grass home I helped my father work with bees in the old round tree gum. The love of bees then instilled into my heart still clings to me, so I procured five colonies in old round black gum hives, and transferred them a few weeks ago into L. hives, which I made myself, and now want to combine bee-keeping on a small scale with the garden and fruit. My friend J. Gaston Catrmel, a bee-keeper, has kindly loaned me some copies of GLEANINGS and your A B C of Bee Culture. I am so well pleased with these publications that I must get each of them as soon as my means will allow it. Your position in regard to tobacco, intoxicating drinks, and profanity, together with your plan of working with boys and girls and grown-up people in your business, meets my hearty approval. May God bless your work. Keep on, dear brother. There are few on earth that live and work on that line. Work on that line, and don't surrender. May we meet over there, if not in this vale of tears. M. C. BRICKEY.
Jackson, Tenn., July 2.

SUPPLY-DEALERS BEING BEHIND; THE OTHER SIDE.

Friend Root:—In looking over GLEANINGS for June 15 I notice the letter of F. F. Harrington. It pains me to read such communications, and I want to say to the readers of GLEANINGS that I have had dealings with A. I. Root for several years, and have found him one of the most prompt supply-dealers I have ordered from. His promptness in answering letters is one of the reasons I order goods shipped so far; and if any misunderstanding occurs he is always ready and willing to make it satisfactory; and what more can mortal man do? Who of us do not make mistakes? And I do hope, dear friends, we shall all try to have more charity for one another. I have felt the inconvenience of this waiting, very much; and I have been compelled to order a few goods from other dealers to last me until they do come; but I am not going to blame A. I. Root for it. He has not been sending out any price lists for some time, and is doing all in his power to fill orders, and I can not think any one is excusable for accusing him of using *deception*. That word means a good deal. Bro. Root, I trust you will not let unkind letters worry you very much. I presume friend H. is a stranger to you.
Linn, Kan., June 20. J. T. VAN PETTEN.

"BANNER" Years ago, when I began working with my brother, the editor of the *Review*, his apiary was called the "Banner Apiary." A large share of this apiary is still kept at the old place, where I manage it on shares. It is stocked with a fine strain of Italians, and I have been saving the best cells from the best colonies, when they swarmed, and having the queens hatched and fertilized in nuclei. These queens I offer at 75 cts. each, or three for $2.00. No black bees near here. Can fill orders promptly, and will guarantee safe arrival. Make money orders payable at Flint, Mich. Address

15tfdb **ELMER HUTCHINSON,**
Rogersville, Genesee Co., Mich.

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN BEES.

For the highest type of these bees see our advertisement in GLEANINGS, July 1 No. 15tfdb
J. B. MASON & SON, Mechanic Falls, Me.
In writing to advertisers please mention this paper.

TESTED or warranted Italian queens, 90c each; untested (young laying) Italian queens, 60c each. Can send by return mail. Address
OTTO KLEINOW, No. 150 Military Avenue,
Detroit, Mich.

500 Italian Queens For Sale. Tested, $1.10, three for $3.00. Untested, 70 cts. each; three for $2.00. Also bee-keepers' supplies, etc. 16-page circular free. 15tfdb
JNO. NEBEL & SON, High Hill, Mo.

☞In responding to this advertisement mention GLEANINGS.

Alley's Business Queens

ONE DOLLAR EACH.
HENRY ALLEY, - - WENHAM, MASS.
Please mention GLEANINGS. 15tfdb

THOSE 75 Ct. ITALIAN QUEENS

FROM THE OLD MAID'S APIARY,

Are giving perfect satisfaction. Orders promptly filled. Satisfaction guaranteed.
Address **E. D. ANDREWS, P. M.,**
North New Salem, Mass.
Please mention this paper.

Italian Honey Queens.

Tested, $1.25; untested, 75c.; select tested, $2.00. I have shipped queens from Canada to Texas, and from New Jersey to Oregon. Never had a complaint nor lost a queen. Two-frame nucleus with any queen, $1.50 extra. I guarantee satisfaction or refund money.
R. W. TURNER, Medina, Ohio.
In writing to advertisers please mention this paper.

A REVOLUTION In Strawberry growing. The **Enhance** is the most reliable, most productive, largest shipping and all-purpose berry ever before offered. Send for description and price. HENRY YOUNG, Ada, Ohio. 15-16d

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—Apiary and small fruit farm, half-mile from court-house, 30 acres; 60 L. hives, honey-house, extractor, etc.; wire-netting poultry-yard, poultry-house, 50 Langshans. Box house with 3 rooms, good well, timber and grass, field and garden tools, etc., etc., all for $800.00, half cash, balance time. F. M. SAUNDERS, Hamilton, Texas.
9-10d Please mention this paper.

CARNIOLAN QUEENS,

Circulars giving special prices for Carniolan queens, bred the remainder of the season from pure and gentle mothers, the workers of which can not be surpassed as honey-gatherers. Send for circular.
JOHN ANDREWS,
15tfdb **Pattens Mills, Wash. Co., N. Y.**

☞In responding to this advertisement mention GLEANINGS.

AL-BI-NO.

Do you want to take the premium at your fair this fall? If so, send for my prices on two and three frame nucleus of the most beautiful and gentlest race of bees known.

—THE ALBINO.—

Send for a queen and be convinced. 15-17d
A. L. KILDOW & BRO., Sheffield, Ill.

☞In responding to this advertisement mention GLEANINGS.

FRIENDS, I HAVE

Italian Queens

For sale, bred from an imported queen direct from Italy very cheap. Send for prices. Address
FRANK LAUBENTHAL,
Brickner, Ohio.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—My queen-rearing apiary and business, dwelling and out-buildings, and about 8 acres, for $1700.00. Fruit and berries; fine location; pleasant village; a nice home at a bargain. Also privilege of an out-apiary. Write. 15tfdb
CHRISTIAN WECKESSER, Marshallville, Wayne Co., Ohio.

☞In responding to this advertisement mention GLEANINGS.

Italian Queens Cheap. TESTED, $1 50. UNTESTED, 75c.
13-14-15d A. R. YOUNG, Rossie, St. Law. Co., N. Y.

THE BRIGHTEST

Five-banded, golden Italian Bees and Queens, and the **Reddest Drones.** Very gentle; very prolific; good honey-gatherers—working on red clover—and the **Most Beautiful** bees in existence! Took 1st premium at Michigan State Fair, in 1889. Reference, as to purity of stock, Editor of *Review*. Sample of bees, five cents. Untested queens, $1.00. 6 for $5.00. Tested (*at least* 3 bands), $3.00; selected, tested (four bands), $5.00; breeding queens (4 to 5 bands), $7.00. Virgin queens, 50 cents; 5 for $2.00. Safe arrival and satisfaction guaranteed.
JACOB T. TIMPE,
8-15db **Grand Ledge, Mich.**

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN APIARY FOR SALE!

My Carniolan apiary must be sold at once, to allow me to move to Colorado Springs.

"You have the best Carniolans in the country."
H. ALLEY.

Select imported queen, $5; untested queen, $1; untested, ½ doz., $5; tested queen, $4; 1 lb. bees, $1; 3-frame nucleus, $2.00; full colonies, in 1-story Simplicity 9-frame hive, $5; add price of queen you want. Ten per cent discount on all orders of $20.00 or over. Large stock of all ready to ship at once. Queens by mail, others on board cars here by freight or express, as ordered. Remittance of currency, bank draft, or money order must accompany all orders.

Will sell my whole apiary and implements, and give immediate possession. House and grounds also for rent.
S. W. MORRISON, M. D.,
12tfdb **Oxford, Chester Co., Pa.**

☞In responding to this advertisement mention GLEANINGS.

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.
9tfdb **OLIVER HOOVER & CO.,**
Mention this paper. **Snydertown, Pa.**

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**
Please mention this paper.

Vol. XVIII. **AUGUST 1, 1890.** **No. 15.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

SHIPPING AND SELLING HONEY.

VALUABLE HINTS FOR EVERY PRODUCER, FROM OUR COMMISSION MEN.

As honey-producers, in a majority of cases, are about ready to dispose of their product (if indeed they have any to sell) it may not be amiss to give some practical suggestions regarding when and how to ship, and the best marketable form in order to get the best returns. This information ought to come from those who have had largest experience in the way of shipping and selling honey, and we have therefore prepared a series of questions, and sent them on to those who quote prices in our Honey Column; namely, the much-abused commission men. These fellows, with all their faults, render much and valuable service to bee-keepers, though some of our friends, we fear, think otherwise. While it is a good rule to dispose of honey at home if we can, at good prices, yet if this can not be done we must seek the aid of those who make it a business to handle honey. Our honey-men have very kindly answered the questions we ask below, and we hope our readers will take pains to read carefully the suggestions given in the replies. The questions are as follows:

1. Do you prefer to receive consignments of comb honey in single-tier or double-tier cases? and what capacity in pounds?

2. What is your opinion as to the best size of sections for selling—1-lb., 4¼x4¼, or a different size?

3. Do you prefer that the 1-lb. section shall contain a little less than a pound, or a little more?

4. Do any of your customers sell sections by the piece rather than by weight? What way has your preference?

5. Do you have any difficulty in moving off dark grades of honey?

6. Would you recommend the producer to market all his dark honey in extracted form, rather than in comb?

7. What sort of package is best adapted for shipping extracted honey? What do you think of the 60-lb. square tin cans, as compared with barrels and kegs, for shipping? In short, what package do you recommend your shippers to consign you extracted honey in?

8. About what time ought comb honey to be sold, to get the best prices? What time for extracted?

9. When a consignment of comb honey comes to you in a broken-down condition, what do you do?

10. Do you think that producers realize more for their honey when shipped on commission than when sold outright?

The replies are as follows:

1. Single-tier cases, not over 30 lbs. net.

2. 4¼ x 4¼.

3. 1-lb. sections preferred, *short* weight.

4. Retailers sell by the piece, calling it a pound.

5. Dark grades, except buckwheat, move off slowly, and at low prices, comparatively, though straight buckwheat sells readily.

6. We recommend extracting *all* dark honey but buckwheat.

7. We prefer cheap dark grades of extracted honey in barrels or half-barrels, on account of lower cost; fine grades in new 60-lb. cans, with screw tops, or in good kegs.

8. Best time for *comb* honey, in the early season;

i. e., September and October; extracted, from September to February.

9. When consignments come in broken, and shippers hold a receipt signed, "In good order," *without* the claim, "*Owner's risk*," etc., we make claim for damage against the transportation company, in many cases.

10. Producers generally realize more when shipped on commission than when sold outright. This is the reason why the king of bee-keepers, Capt. H., ships all of his product on commission.

1-lb. sections of honey sell best in light and *showy* paper cartons. We recommend strongly, again and again, to put in every crate a sheet of corrugated or indented pasteboard. It protects the combs somewhat against breakage; and if one comb is leaking it protects all others against soiling.

New York, July 7. F. G. Strohmeyer & Co.

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1. We prefer the single-tier cases, about 25 lbs. each.

2. One-pound sections.

3. Full one pound.

4. Honey in sections is generally sold by weight.

5. There are objections to dark colors, and such can be sold only at a reduced price.

6. By all means let the dark honey be extracted, as it will not sell in the comb.

7. We find extracted honey more salable in barrels and half-barrels. We would not advise 60-lb. packages of any sort. They are more expensive, and yet not desirable. We would recommend shippers to send their extracted honey in barrels or half-barrels, whichever is the more convenient to them.

8. The best time for shipping comb honey is in September or October, after the hot weather is over. It is more generally used during cold weather. Extracted honey can be shipped at all seasons of the year, as the demand is not governed so much by the weather.

9. Comb honey received in a broken or bad condition has to be sold for what it will bring, as the longer it is kept the greater the waste, and less valuable it becomes; hence the necessity of the shipper's starting it in good sound packages.

10. This can be answered only by the shipper himself. If he can realize a fair price at home, we think it safe for him to accept; but there are times and places when the producer can not find sale for his property, in which case he is compelled to find a market elsewhere. Our market is quiet to-day. Our receipts are increasing. We anticipate a good demand at remunerative prices this season.

St. Louis, July 22. D. G. Tutt Grocer Co.

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1. We prefer to receive consignments in single-tier cases of from 12 to 25 lbs. weight. The 12-lb. cases meet with general favor, and always move off first. Single-tier cases are preferable, as they ship in better condition; and in case of leakage there is no bottom layer to spoil.

2. The 4¼×4¼×1⅝ section, in our opinion, is the best size, for market use.

3. Our customers prefer a section to contain a little less than 1 lb., as they are mostly sold by the piece, and not by weight. By so doing they gain a few pounds on every case, which is quite an advantage, as the article is sold on a close margin.

5, 6. We find it difficult to move all dark grades of honey, both comb and extracted.

7. Extracted honey shipped to this market should be in cans holding 60 lbs. or less.

8. As the honey crop in this section has been a partial failure for the past few years, the same being the case this year, we find that honey placed on the market early brings the best price. Later in the season it is gathered in from different sections, causing a break in price.

9. When a consignment of honey arrives in broken-down condition we recrate it. The broken combs are placed in cans, and disposed of to the best advantage. As a usual thing, when honey arrives in that condition there is very little realized out of it. Breakage might be avoided to a great extent if shippers would be careful to pack their honey properly. We have had shipments of honey arrive with a space of ¼ of an inch between sections, causing, by continued jostling, ⅔ of the sections to break down, and a leakage of ½ or more of the honey. In most cases, when honey is properly packed, particularly in small cases, it comes through in good shape.

10. When honey arrives in good shape we think producers realize more by having it sold on commission. In addition we would suggest that shippers be careful to sort their honey, and pack the same grade together. Never mix light and dark. Always ship by freight, as it arrives in much better shape than by express. Earle Clickenger.

Columbus, Ohio, July 21.

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1. We prefer single-tier cases weighing from 16 to 18 lbs.

2. One-pound sections, 4¼x4¼, sell well, as do also sections 4x5¼. The latter are one inch thick, weigh a trifle less than a pound, and are generally retailed by the piece. We also have considerable demand for 5x5 sections weighing a pound and a half.

3. We prefer that the 1-lb. sections contain a little less than a pound.

4. Very many of our customers sell sections by the piece rather than by weight, and we prefer this way for retailing.

5. We have no difficulty in moving dark grades of honey.

6. We would not recommend the producer to market all his dark honey in extracted form, but only that portion that is unsalable in the comb.

7. Extracted honey sells well in barrels, half-barrels, 60-lb. square tin cans, and small pails. We would recommend large producers to use half-barrels, and small producers the smaller packages.

8. Comb honey sells best during the months of September and October. The earlier it can be placed on the market, the better. The demand for extracted does not begin much before January, and sells well during the three following months.

9. We find the best thing to do with a consignment of broken honey is to offer it somewhat below the market price, and sell as soon as possible. There are always buyers for such honey, and it does not pay to overhaul damaged stock.

10. We think producers, as a rule, realize more from honey placed on commission with firms that make a specialty of selling honey than by selling outright, for the reason that the party buying outright must assume the risk of a possible decline in prices, and on that account can not pay full market price at time of purchase. We seldom have any trouble from broken honey when shipped by

freight, but we rarely receive a consignment by express that is not more or less damaged; besides, freight rates are much lower than express. Consigners should seek to keep the cases as clean and bright as possible, therefore avoid marking with brush and paint. Small stencil or rubber stamps will answer every purpose. We advise glassing one side of case only, and not the sections.

Albany, N. Y., July 9. CHAS. McCULLOCH & CO.

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1. We prefer comb honey in single tiers, twelve frames to case, weight 10½ to 12 lbs.

2. The best size of sections to show comb honey, we think, is 5x4 3/16 by 1¾ thick.

3. We prefer light weight, but only from 1½ to full weight in the 12-lb. cases.

4. Most of the retail trade sell comb honey by the section.

5. We never have had any trouble in moving dark comb honey.

6. We would recommend extracting half of the dark honey.

7. We certainly recommend the screw-top 60-lb. square can, shipped in cases of two cans to the case. It all has to be put in this shape to sell in our market, except very dark honey.

8. Producers of honey, like producers of grain, must use their own judgment in moving their crops. Comb honey is sold every day in the year. As soon as the new crop comes in we always find the farmer and small bee-man selling their honey at very low prices, some years supplying the trade until October. After that time honey-dealers govern prices to a certain extent. If a number of shippers want honey sold quick, and every shipper is forcing sales at the time, this compels receivers to keep honey down in order to move stocks.

9. When a consignment of comb honey is received in bad order, we have our man go through the consignment and take out all unbroken comb and repack the same. The broken comb is then sold.

10. If a producer has a home trade for his honey, and time to sell the same, he may do better than shipping; otherwise a good commission man that makes a specialty of honey can sell his crop to better advantage than the producer. All comb honey should be shipped where it is to be sold, before freezing weather. It saves the shipper breakage, and the sellers the trouble of repacking, as comb honey shipped in cold weather is almost always received in bad order.

HAMBLIN & BEARSS.

Kansas City, Mo., July 12.

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1. We prefer single-tier cases with a capacity of 20 or 25 lbs., it does not matter which.

2. We prefer, for one-pound sections, 4¼x4¼ size.

3. We prefer that one-pound sections shall weigh 15 ounces rather than 17.

4. Most of our customers prefer to sell honey by the piece rather than by weight. Our preference, for our customers' sake, is that the weight be so that they can do this. We, of course, are obliged to sell by weight.

5. We have very great difficulty in moving off a dark grade of honey. Boston is the poorest market in the country for off-grade honey.

6. We would certainly recommend the producer to market his dark honey in the extracted form.

7. We prefer the 60-lb. square tin cans to any thing else, there being two 60-lb. cans in a case. We receive a great deal of honey from Florida in kegs and barrels, but prefer the tin cans.

8. Comb honey ought to be sent to market about September 1, and from that on through the season. Extracted, about Oct. 1.

9. When a consignment of comb honey comes in in a broken-down condition, we find some restaurant man who will cut the combs out and sell them from a platter, but we have very hard work, and rarely get over 8 to 10 cts. per lb. for the honey, and never can collect any damage from the transportation company.

10. This is a hard question, especially for a commission man, to answer; and we think it best for the producer to draw his own conclusions from his experience. We have a great many letters from shippers, expressing their perfect satisfaction with the way and manner and prices they have received for their shipments of honey to us. We have had some people who have written us they could have realized more if they had sold their honey at home. We can only say that, after fifteen years of close attention to the honey business, we turn away five times as much honey as we receive, it always being our policy to check all consignments that we do not think we can handle to advantage, preferring to please our shippers rather than to secure a large quantity of honey and cut prices. We feel very sure that those who have shipped to us believe that they can do better than to sell their honey. There has been a tendency of late years to rush honey to the market in the early part of September. This always demoralizes prices; and receivers, in their anxiety to sell, put honey lower than there is any necessity for it to be sold.

Boston, Mass., July 7. BLAKE & RIPLEY.

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1. In general we prefer consignments of comb honey to come in single-tier cases; yet when properly packed, the double-tier case is usually preferred by the retail dealer, as honey shows up to better advantage, and carries, or bears transportation, equally well.

2. Sections 4¼ x 4¼ we think most desirable for 1-lb. combs.

3. We should like the section to contain exactly one pound of honey. Perhaps scant is better than over, as the frame is too full, and dealers lose the overweight in many instances.

4. Where the special advantage to the retailer exists is in having sections so uniform in weight that they can be sold at so much per frame.

5. There is a very limited demand for dark comb honey, and it seems to us that only those who have worked up or secured a trade for it should put it on the market unless they can afford to have it sell at 3 to 5 cts. per pound below the white in same shape. Extracting is, to our mind, the best way to secure good value for dark honey, it varying in price from one to two cents below white. A good demand is also found for it, especially a choice article, such as well-ripened buckwheat, for which we have a line of customers.

6. The most popular packages in this maket are barrels containing 300 to 500 lbs., and the square tin can, which ought to contain just 60 lbs. of honey. These packages meet the wants of dealers who buy of the commission merchant or jobber. Kegs are too light, and honey soaks through them. As to which of the two packages to use, we would invariably give the tin preference, as dealers who

use barrels will take tins when barrels can not be obtained; but it is more difficult to get the other class to take barrels in lieu of tins. Yet if the tins cost half a cent per pound more than the barrels, use the barrel.

7. Our experience would point to the four closing months of the calendar year, or middle of August to middle of December, as the best months in which to sell honey, both comb and extracted; but, please remember we do not say that that *is the* time to *sell*, for circumstances beyond our control, and our general inability to read the future, warn us that all commercial rules are subject to change. The highest prices obtained by us in an experience of 16 years were in February and April, 1879. The lowest was about the same time in 1887.

8. Sell it as soon after arrival as possible. We do not recase nor change from original package.

9 Sometimes one, and again the other. Circumstances existing at the time should determine the matter.

10. The subject has been quite exhaustively treated by Mr. C. F. Muth, in your issue of June 15, and we agree with him in the main details of preparation, etc., of honey for the market. As the form of package he finds necessary in his method of disposing of honey is fully explained, and the reason therefor given, no comment is needed. The one-pound section for comb honey, and the tin can and barrel before described, are at present the popular packages here. R. A. Burnett.

Chicago, Ill., July 12.

Yours of July 5th is received. We will try to answer your questions as near as we know how. Before commencing, we should like to say that we think the questions asked are very important, both to producers and dealers, especially those pertaining to getting honey ready for market, grading, and style of packages. If all bee-keepers could realize the importance of putting up their honey in merchantable shape they would realize much better prices and quicker sales. There is nothing better than a whitewood package for comb honey; one side glass front is sufficient; and be very careful that the contents of the case compare favorably with the row of sections that is exposed.

1. We prefer the single-tier cases, either 12 or 24 sections, weighing about 11 to 22 lbs. respectively.

2. We like the 5 by $4\frac{3}{16}$ and $1\frac{3}{4}$ thick section best. It shows a larger surface of the comb than a $4\frac{1}{4}$ by $4\frac{1}{4}$ does.

3. As the one-pound sections can not be made to weigh exactly a pound, we prefer they weigh a little less.

4. The most of our customers sell more honey by the section than they do by the pound. We should prefer to sell it by the pound.

5. We have considerable difficulty in disposing of dark comb honey, even at low prices.

6. We would recommend that at least fifty per cent of the very dark comb honey be extracted.

7. The very best package for shipping white and amber extracted honey in is the five-gallon screw-top tin can, two cans inclosed in a wooden case. Ship the very dark honey in kegs and barrels.

8. We can not say when is just the best time to sell comb or extracted honey in order to realize the best prices; but we would advise early shipments, as honey is much less liable to be broken down while in transit when shipped in warm weather than in cold. The early shipments of comb honey generally bring the best prices, but only in a small way. Our best trade for both comb and extracted honey commences with cool weather, and continues about the same through the season. Very little extracted honey is sold until cool weather

9. When a consignment of comb honey comes to us in a broken down condition we immediately have it looked over, all the perfect sections selected, put back in the cases, and the broken comb sold to the first customer, generally realizing about half price for it. The next thing we do is to present a bill of damages to the railroad or express company for the loss.

10. As to whether producers realize more for their honey when shipped on commission or sold right out is a rather delicate question for a commission merchant to answer; but we with pleasure refer to our numerous patrons who have consigned honey to us the past season. They will bear us out in saying that they realized more for their honey than they would have done had they (if they could) sold right out. Some producers get in a great hurry to realize from their crop; and if they don't find a customer just when they want to sell, and at the price they ask, they become uneasy for fear they will not be able to dispose of their honey. The very worst competition we had last season originated with this class of bee-keepers. We would advise them to ship their honey to some commission merchant, and give him time to dispose of it. He makes it a business to find the best market, thereby realizing the best prices for his shipper, and making him happy.

Kansas City, Mo. Clemons, Mason & Co.

The replies given by commission men will in every case be found exceedingly valuable, and we hope all honey-producers will take the time to read this whole subject thoroughly. By way of a summary we note the first question, that the single-tier case is invariably preferred, the capacity being anywhere from 12 to 24 lbs.

(2) The $4\frac{1}{4}$ sections are in most cases recommended; and,

(3) Light weight rather than overweight is preferred, because

(4) The most of the retail trade sell comb honey by the section. We must confess that we are a little surprised at the replies to 3 and 4. Our customers are, for some reason or other, beginning to demand $4\frac{1}{4}$ sections a little less in width than the regular $1\frac{15}{16}$. In fact, during the past season we have supplied a very large trade on $1\frac{7}{8}$, and we propose next year to make the $1\frac{7}{8}$ section our standard, rather than the $1\frac{15}{16}$—not only because bee-keepers demand it, but because commission men recommend underweight rather than overweight. Right here a wrong may be involved; but if the retail dealers distinctly state that their sections are sold by the *piece* and not by the *pound*, and the customer so understands it, then there is nothing wrong nor dishonest about it, any more more than there is in selling apples and oranges by the piece. Still again, most people are better satisfied in their conscience to buy a luxury providing it costs a little *less* than they anticipated; but if it *exceeds* the price which they have fixed in their mind as the limit of what their purse will

stand, they will rarely buy. For instance, comb honey is quoted at 20 cts. per lb. A customer asks his dealer the price of this or that section of honey. If he says 18 cts., the honey is sold; if 22 cts. is asked, the customer refuses to buy.

(5) We are surprised that so many of the commission men say they have no trouble in moving off the dark honeys.

(6) We note that most of them prefer to sell dark honey in extracted form rather than in the comb; and they advise the producer to extract most of his dark honey, if he wishes to sell it.

(7) It is surprising to note how popular the 60-lb. square tin can is for shipping extracted honey. Only two—and one of these very emphatically—prefer barrels instead of the square cans. The latter costs about half a cent a pound, and new barrels can be had for about a quarter of a cent. One of the dealers says that, if barrels cost half a cent more than the tin, use the barrels; but otherwise, he says, use the tin. After all, it seems that there is only a quarter of a cent in favor of the barrels; and as commission men generally prefer the square cans, producers may all gather a good hint here.

(8) The best time to move off comb honey is some time in the fall—it may be early or late. A good deal depends on circumstances and the judgment of the seller.

(9) We have had honey come to us in a broken-down condition; and knowing that our commission men must have had similar experiences we are greatly interested in reading their replies. We have been in the habit of sorting it over and wiping off soiled and sticky sections, but it takes a good deal of time. Blake & Ripley suggest a very sensible method of disposing of it—getting restaurant-keepers to take it at a reduced price. Chas. McCullough & Co. do not think it pays to overhaul it, and they remark that there are buyers who will always take it.

(10) We knew that this question would be a hard one for commission men to answer; but their replies seem candid, and we have no doubt but there are many times when honey on commission will bring more than when sold outright. In the latter case there is an immediate and certain return, while in the former there is some risk. It is true, that when honey is bought outright the buyer must assume all risk of fluctuations in prices; and to be on the safe side he will naturally buy as *low* as possible. If honey is sold on commission, both parties are interested in getting as good a return as possible, though we know *sometimes* the producer is dissatisfied with the returns. If he could put himself in the position of the commission man perhaps he would think more charitably of his neighbor.

JONES VS. BROWN, AGAIN.

THE LEGAL ASPECT OF THE CASE.

I HAVE been very much interested in the controversy over the question of the responsibility of the above parties as stated in the contract, and I differ entirely from Mr. Caldwell, Mrs. Harrison, and others. In reading the contract it reads to me like this: Jones has let 100 (number not given) stands of bees to Brown, each to share the *profits* alike. Now, then, let us suppose that A. I. Root agrees to let W. S. Fultz have 100 stands of bees for the season of 1890, Fultz to take care of them and to share the profits with A. I. Root, and the increase is 100 stands of bees during the season. Now, how many stands of bees will belong to A. I. Root, and how many to W. S. Fultz? Evidently, A. I. Root will want the original 100 and half the increase, which would make his share of the bees 150 stands, and W. S. Fultz would have only 50 stands.

Now, if those bees were lost during the following winter, the loss of the increase, which was all that was owned in common, should be borne by both parties alike; but the original 100 stands were the property of A. I. Root, and he should stand the loss on them. According to the contract as stated in GLEANINGS, it is evident that, when Jones and Brown dissolve partnership, Jones will want his original 100 stands of bees, or all of them that will be alive at the time, and also half the increase. Then the proposition of Mr. Caldwell, in last GLEANINGS, that they are both equal owners in the apiary, is not correct. Brown is not part owner in any thing but the profits. W. S. FULTZ.

Muscatine, Ia., July 8.

When doctors disagree, who shall decide? It seems to me, friends, that keeping bees on shares is a complicated way of doing business, at the best. Why not rent them for a certain sum of money, to be paid in time, whether the season be good or bad? But even then we should have to meet the question of returning the bees in as good order as they were received.

GETTING THE BEES OUT OF THE SECTIONS.

DOOLITTLE GIVES A DISCOURAGING REPORT OF THE HORIZONTAL BEE-ESCAPES.

As the time for taking off the surplus honey is at hand, perhaps a few words regarding getting the bees out of the sections will not be amiss. The most common way of doing this in years gone by, and, surprising as it may appear, quite common yet in some places even at the present time, was to go to the hive and slide a piece of tin between the communications of the hive and sections, when they are removed; or else smoke is used to drive the bees from these openings, when, in either case, the honey is carried to a room having all but one window darkened, where it is left for the bees to collect on this window, when they are put outdoors by reversing the sash, or otherwise. The latter plan, where smoke is used, will do much better than the former; for with the tin, many bees are cut in twain and otherwise mutilated, thereby making the colony very cross, besides being a very cruel mode of procedure. I hope that no one in the future will persist in such a way of taking off honey.

Some use a barrel or bee-tent to set the honey in, instead of the room, putting a cloth over the barrel for the bees to collect upon, when it is turned over as often as the bees collect upon it, thus setting the bees free. With the tent a hole is left in the top for the bees to go out through. This latter is preferable to the room, providing the barrel or tent is left

in the apiary near where the honey is taken; for in this case many of the young bees will find their hives, while they would not if carried to the room. Some of our eastern bee-keepers have bee-escapes on the hoods or caps to their hives, the same being a cone-shaped piece of wire cloth which is placed over a hole in the cover to the hive. At the point of this cone is a hole large enough to admit a bee, which point stands out from the hive. The honey is now separated from the main hive, and communication with it shut off, while the passageways to the sections are left open. The cover is now put on, which allows no place for the bees to get out, except through the bee-escapes. The bees now commence to leave the sections, going out through the escapes, while no robber bees can get at the honey, because they do not know enough to go out to the point of the cone-shaped wire cloth, but keep trying to get in near the base, where the fragrance of the honey is the strongest. In a day or two the honey is gathered up free of bees. When I heard Mr. Manum tell of this process at a bee convention, I at once fell in love with it, especially as he told of taking off double the amount of honey in a given length of time that it was possible for me to do. The only drawback there is to it, and the one which is applicable to all plans where the bees are removed from the hive, is, that very many young bees are taken with the honey, too young to get back again, while the queen is sometimes carried away, unless a queen-excluder is used, which in either case results in quite a loss, especially if the queen should happen to be in the sections. Again, the bees will always fill themselves with honey when thus removed; and in doing so they often make the nice combs quite unsightly by their gnawing the cappings to the cells. For the above reasons I prefer to proceed as follows, so as to leave all bees in the hive where they belong, and save the harm to the combs. I go to the hive, quietly remove the cover and one of the outside boards to the section case on the side next to me, when a few puffs of smoke are given to drive the bees off the face side of the combs. I next go to the opposite side of the hive, take off the board there also, and treat that side the same as the first. I now point the nozzle of the smoker to each of the little holes the bees always leave in the upper corners of the sections, when the smoker is worked vigorously, say two or three puffs at each hole. The same is done on the other side, using force enough with the smoker to drive the smoke clear through the sections from one side to the other. Now wait a moment or so, to give the bees time enough to run down into the hive below, when the sections are taken off nearly or entirely free from bees, and are ready to be stored away as soon as off, just where they are wanted. Should a very few bees stick to them they will be old bees, and when they fly to the window of the honey-room they can be let out and will always find their way back to the hive. Caution should be taken not to wait too long after the smoke has been blown through the holes, especially when honey is not coming in; for if we do, a reaction will take place, when the bees will run back into the sections almost as lively as they went out, where they will stick till they have filled themselves with honey, in spite of smoke or any thing else. When I first saw the horizontal bee-escapes which were to be used in the honey-board the past winter, I had great hopes for them in ridding our sections of bees, and allowing them to go right down into the hive where they belonged, so that, without danger to either queen or young bees, we might take our honey from the hives with little labor, and free from bees; but I am informed that those horizontal bee-escapes worked far better on paper than they now do when they come to be used on the hives. One of the inventors of these escapes writes me that he is disappointed with them, on account of their not doing what was expected of them. So far our season for honey has proved almost a failure, so I have had no chance to give them even a trial. I hope, if they are not already what they ought to be, that some inventive genius may find out where the trouble is, and give us an escape that can be placed under a case of sections or an extracting super at night, and rid it of bees before morning. G. M. DOOLITTLE.

Borodino, N. Y., July 17.

Friend D., I am very sorry indeed to hear that you have succeeded no better with the horizontal bee-escapes. At the time so much was said about them I was a little fearful that it would turn out as you say. Perhaps, however, others have succeeded better. Friends, will you please give us your experience, especially in using the horizontal bee-escape to get the bees off from your comb honey?

KEENEY'S COMB-SPACER

A DEVICE TO GET RID OF BURR-COMBS, THICK TOP-BARS, AND HONEY-BOARDS.

I THINK it was Josh Billings who asked the question, "What's the use of learning so much, when half you learn ain't so?" I have thought of it often during the last year, when reading the different articles in bee-periodicals upon the subjects of burr-combs, sagging top-bars, thick top-bars, beveled top-bars, with many devices illustrated to prevent them. Ah me! how well I know that many things for use in the apiary are perfect in theory, but practically are total failures. No subjects in apiarian work have I given so much study to, as properly and accurately spacing my combs, preventing burr-combs and sagging top-bars, and I am happy to say I am master of the situation, and my frames are as free from burr-combs (except when sections are on) as when you ship them from the factory. With my spacing-device, bees winter better, come out stronger in spring, and, as a practical test, every other hive to the number of fifty, for two years, the spacers were left out; and those with it in swarmed 16 days the earliest, on an average, through the apiary, showing they were warmer, and bred up much faster—fully 40 per cent. Bees can be moved to and from out-apiaries, to and from cellar, or about the yard, without a frame slipping or shucking a particle. It is applicable to any kind or size of movable-frame hive, with combs wired as described in GLEANINGS for May 15th. Every comb will be as even and true as so many boards. Loafing-places for from 100 to 1000 bees will be closed. Any frame in the apiary will exactly fit the place of any other frame, no matter from what hive taken, making them all interchangeable, so desirable to every apiarist. The spacers can be taken out or put in in half a minute, and they do not cost 5 cents per hive. I have fully tested them two years with pride, pleasure, and profit. I use a hive similar in

size to your eight-frame Dovetailed, my frames being ⅜ thick by ⅞ wide, top, ends, and bottom-bars. These in the hive evenly spaced, leave 7 spaces between the frames, $\frac{9}{16}$ inch wide, with two spaces back of the outside combs, just half that width. Now get 7 strips ⅜ inch thick, scant $\frac{9}{16}$ inch wide, and the length of your top-bar, also two strips half the width gotten out, and put them in those spaces; clean off from your old frames burr-combs, side and top; and if you have bulged comb, shave it off for that spacing, and you will find that all future comb-building will be in exact keeping with that scant 1½-inch spacing. It works perfectly; and if any practical apiarist will give it a trial, and can find any fault with it, I should like to have him tell what it is, in GLEANINGS. E. D. KEENEY.

Arcade, N. Y.

If I understand your spacing-device it is simply a series of strips of wood wide enough and long enough so as to close entirely the spaces between the frames. Of course, there will be no burr-combs because the bees can not gain access to the tops of the frames the spacers are on. Those spacers must be removed every time you put on sections or an extracting-super. I doubt very much whether such an arrangement will be tolerated by bee-keepers in general, for you yourself say that there are no burr-combs except when the sections are on, and that is just the *very* time when burr-combs are built, and when we don't want them. When honey is not coming in they are not built, and so your spacers will do no good except to hold your frames at fixed distances. In fact, friend K., we do not see that you get rid of the burr-combs at all.—Your method of wiring is working nicely, and it will probably supersede all other methods for new frames in the near future.

DADANT'S EXTRA-THIN FOUNDATION STRETCHING.

THE RIGHT AND WRONG WAY TO PUT FOUNDATION INTO SECTIONS.

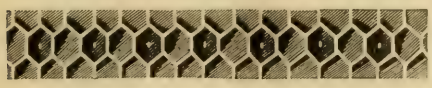
I am using Dadant's extra-thin comb foundation in the standard one-pound section, but have to trim every piece, as the bees bulge it if used full size. Now, if this is always the case why do they not make it narrower and save waste? Can you mention this in GLEANINGS? I should like to know what others think about it. Bees are booming on basswood now. It openea here July 4.

HARRY LATHROP.

Browntown, Wis., July 10, 1890.

We sent the above to Chas. Dadant & Son, who reply:

We think the main trouble lies in the foundation not being properly hung. It should hang thus: or



it may be that the foundation was too fresh when used, for we notice that the softness of the fresh sheets, which makes them more malleable for the bees, also helps them to sag more readily. Most of our customers use foundation for sections 4 inches wide, and we have but very few complaints of its being too wide; we think this is due to the fact that the most of them do not use full sheets, but only three-cornered pieces or narrow strips running the full length of the section. We prefer to use sheets about 4½ inches wide, and cut them in two so as to make a little over two inches in depth. This allows of sagging whenever there is any in the extra-thin foundation. We expected to hear of more sagging this year than other seasons, owing to the exceedingly hot weather of the month of June, but so far we have not had any complaints. We should like to hear from others. We cut our foundation any size wanted. DADANT & SON.

Hamilton, Ill., July 19, 1890.

The point you make, friend D., is referred to by Cheshire in his work, and we are glad the matter has come up as it has, for the opportunity is presented of instructing the users of foundation respecting the right and wrong way of putting foundation into sections. When it is fastened into sections as shown in the engraving, the downward pulling is all on perpendicular lines. When it is put in the other way, the cell-walls running upward are like a rail fence, or thus: If there is any stretching, this rail fence, as it were, straightens out a little. All our L. foundation is made with the cells so as to hang to the top-bar as shown in the engraving below. Our thin surplus, when it comes out of the mill, is in long strips, four inches wide. If pieces two inches wide are cut off the end, and fastened the long way to the top of the sections they will be suspended the wrong way. If, however, these strips be cut into squares, and then divided the other way, the foundation, when put into the sections, will hang right. There is only one way to get our brood-foundation into brood-frames; and that is, with the cells hanging right as shown below. We have no doubt but that Mr. Dadant makes his foundation in the same way.

After dictating the above I went down into the wax-room to test the relative strength of foundation fastened in the two ways. I took a strip of our thin surplus, 4 in. wide and about 17 long. This I cut into squares. Now, then, I welded together two of the pieces so that one side and one end lapped together. The welding was accomplished simply by pressing the lapped ends so they were, so to speak, firmly fastened. After warming the strips a little and putting the ends between a couple of grippers, I pulled to see which half of the foundation would stretch first. Of course, I expected that the foundation as shown in the cut opposite would stand the greater strain; but in this I was disappointed. I could detect no appreciable difference, after many trials, in the strength of either. Possibly in the hive, when the comb is drawn out, there may be a difference. Theoretically, the facts as stated above ought to be true. Have any of our readers tested this matter in the hive—that is, by making comparative tests by putting sections into the super with foundation fastened both the right and the wrong way? I know that Cheshire and the Dadants mention this in their works. Perhaps the Dadants can give us a little more light on the subject. E. R.

A SMALL THIRD SWARM.

REPRESENTATIONS OF THINGS TRUE TO NATURE.

If there is one thing above another with which we have taken particular pains, it is that all our engravings supposed to represent nature in any of its phases shall be true to life. How provoking it is that there are so many engravings of queen-bees that look as much like a beetle as they do the real object which they so poorly try to show! Yet it is nevertheless a fact that there is not a real good engraving of a queen-bee, although we think we have one in the A B C book that is fairly lifelike. In the accompanying engraving our artist has succeeded admirably in showing a small third swarm. Most of our readers will instinctively recognize something familiar in the pretty little scene. While the individual bees

A LITTLE SWARM OF BEES, JUST AS THEY LOOK AND ACT.

themselves are not exactly typical Italians, yet the cluster itself, the position of the wings, and the manner in which they are hanging together, to say the least, is real and lifelike. I wish to call particular attention to the bee on the extreme end of the broken twig on which the bees are clustering. Every bee-keeper will recognize something in that little individual, strikingly natural. The bees on the wing are not as true to nature as they might be in some cases, but they are very good. It does not take a great stretch of the imagination to think of this as a third swarm, possibly having a virgin queen somewhere in the outer edges of the cluster. Naturally enough, they have clustered on the end of a little twig of a tree so highly prized by the bee-keeper; namely, basswood—or, as some of our friends term it, the linden. Not more natural or more true to nature is the cluster of bees, than the basswood leaves. See! Here and there is a leaf with torn edges. How natural! Yes, and just a little beneath the cluster is a basswood blossom. These facts would show that the engraver had some idea of the eternal fitness of things when he made a little swarm come out and alight on a basswood limb just when such a swarm might be expected—that is, when basswood was evidently in its height, as indicated by the blossom shown a little below, at the left of the cluster.

The swarm was so small as to be unnoticed by the apiarist; but his wife has seen it, and, tugging him by the arm, points to the twig twenty or thirty feet, perhaps, above the ground. The swarming-device is handy, and his assistant has ready at hand one of the indispensables of the apiarist—a ladder. The little swarm is not worth much, but then they are evidently pure Italians, and he will make a nucleus of them. Off in the distance is a well-kept apiary; and at the right, a beautiful home. Whether these are all adjuncts of one establishment, our silent engraver will not tell us.

By way of explanation we may as well say that our artist having run across a beautiful print, evidently the handiwork of a German engraver, forwarded the same to us. We were so struck with its natural, lifelike appearance, that we returned it to him with instructions to engrave it as faithfully as he could. The original artist was evidently a bee-keeper, for how could he have made the cluster and the basswood leaves so lifelike if he were not? Our engraver who reproduced it, with some slight suggestions from ourselves, is also a bee-keeper, and the engraving attests how well the work was done.

VOLITION OF THE QUEEN IN EGG-LAYING.

DR. MILLER ARGUES FOR THE COMPRESSION THEORY.

I THINK it was Quinby, supported by Wagner, who advanced the idea that a queen lays worker eggs in worker-cells because of the mechanical compression in the smaller cell; and in the larger drone-cell, there being no compression, the egg is left unimpregnated. But the reply was made, that eggs are often laid when the bees are building comb, in worker-cells so shallow that there can be no compression, and impregnated eggs are laid in queen-cells, which are still more roomy than drone-cells. Cheshire ridicules Quinby's idea as "a bold guess made long ago by an American apiarist of just repute, though but little acquainted with scientific matters." But Cheshire does not very distinctly state what he does believe. Indeed, it is a little difficult to tell just what is believed by the authors of our bee-works, for most of them speak in a rather vague way. A. I. Root, an author not given to vagueness, says in his A B C: "I can not but conclude that the queen knows when an egg will produce a drone, and knows just what 'wires to pull' to have every egg laid in a drone-cell produce a drone. I think it very likely the workers have something to do with this matter, but I have never been able to make out by what means they signify to the queen that some eggs in drone-cells or even in queen-cells would be desirable."

Dzierzon says: "We must, in any case, assume that the queen possesses the instinctive power to lay fertilized eggs in small cells and unfertilized eggs in large cells," while his English translator, C. N. Abbott, advances the suggestion that internal pressure has something to do with it, and "that the accumulation of eggs in the ovaries enlarges them and causes sufficient pressure to secure their fertilization as they pass the spermatheca." The revised Langstroth, while rejecting the compression theory, says: "Yet it is very difficult to admit that the queen is endowed with a faculty that no other animal possesses, that of knowing and deciding the sex of her progeny beforehand. It seems to us that she must be guided by her instinct."

Prof. Cook is not vague at all, but distinctly gives his belief that the queen controls the whole matter by an act of the will. He strongly fortifies his position by saying, "The Baron of Berlepsch has fully decided the matter. He has shown that old drone-cells are as small as new worker-cells, and yet each harbors its own brood." Prof. Cook further argues: "What gives added force to this view is the fact that other bees, wasps, and ants, exercise the same volition, and can have no aid from cell-pressure, as all the eggs are laid in receptacles of the same size."

In the face of all that has been said on the other side, it may seem presumptuous to attempt any defense of the old theory of Wagner and Quinby, that compression of the queen's abdomen decides the sex of the egg as it is laid in the cell. Still, I suppose I may raise the question whether it has not as much show of reason as any later theory. The sweeping objection to the compression theory is, that impregnated eggs are laid in worker-cells when the cell is barely commenced, "so that pressure can not be exerted," says Cheshire—"in which no compression can take place," says Dadant—"where there could be no pressure," says Cook. Is there not an entire misapprehension here? Surely Wagner and Quinby could not have meant that the diameter of the worker-cell was less than the diameter of the queen's abdomen, and that the abdomen had to be compressed each time into smaller dimensions to allow it to enter the cell. Is it not reasonable that the different position that must be taken in the smaller cell causes compression? Did you never notice the small boy who has been in-

dulging too freely in green fruits? He finds relief in compression of the abdomen, which he secures by simply bending forward. When the queen lays in a worker-cell, she bends into something like a right angle. May not that position have a mechanical effect in some way to secure the impregnation of the egg? When she lays in a drone-cell her position must be different, for the cell is deeper and wider. In the Revised Langstroth it is suggested, "It is possible that the width of the cells and the position of her legs when laying in drone-cells prevents the action of the muscles of her spermatheca."

It is not impossible that exactly the same compression may be caused in a shallow cell barely commenced as in one full depth. If an egg is laid in a shallow cell, does not the queen bend into just as sharp an angle as if the cell were full depth? and is she not bent the same way in laying in a queen-cell? for I think she never lays in queen-cells of full depth. But, how about laying in incipient drone-cells? *Does* she lay in drone-cells less than full-depth? If so, might not the *width*, as suggested by Dadant, have a mechanical effect? But if the width makes drone eggs, then the greater width of the queen-cells ought to make the eggs *droner* still. I don't know what reply can be made to that, unless it be that we know very little about it, only that in some way the peculiar position essential for impregnation may be secured both in the worker and queen, but not in the drone cell.

Prof. Cook presents an argument that at first sight appears unanswerable. He says: "What gives added force to this view [the volition of the queen] is the fact that other bees, wasps, and ants, exercise the same volition, and can have no aid from cell-pressure, as all the eggs are laid in receptacles of the same size."

But, do they exercise the "same volition"? That word "same" is begging the question. Do they exercise *any* volition? Even if the receptacles are of the same size, and if it is fully proven that there is no compression of any kind, does that prove that there is any volition? The common fowl lays eggs of both sexes in the same receptacle; but has she any volition in the matter? Of course, I know that the impregnation is different in the two cases; but is volition proven in one case any more than in the other? If the answer is, that for any thing we know there may be some volition in the case of the fowl, then, I ask, is there any volition in the case of the human race? And now I fancy I see that good-natured smile on the face of the professor as he asks, "Do you think, now, really, that all the force is taken out of my argument?" Candidly, I don't, professor. I confess it leaves it rather bad for the compression theory, but, just as much, it leaves your volition theory "not proven."

"The queen sometimes lays worker eggs in drone-cells." Does she? In regular drone-cells? I beg your pardon. As A. I. Root says in the A B C, "The mouth of the cells will be contracted with wax," and I think no worker egg is ever laid in a drone-cell without the cell being first cut down in depth, and the diameter of its mouth contracted. Dadant says: "This contraction of the cell-mouth seems indispensable to enable the queen to put in motion the muscles of her spermatheca."

Now comes Prof. Cook's clincher. He says the Baron of Berlepsch has fully decided the matter. "He has shown that old drone-cells are as small as new worker-cells, and yet each harbors its own brood." Now, if that proves any thing doesn't it prove too much? If the queen by her volition puts a worker egg in every cell of small size, certainly she would do so here where she finds cells as small as new worker-cells, even though they may have formerly been larger. But I suspect there may be a mistake here, even with so great an authority as Berlepsch back of the statement. Were these cells as shallow as worker-cells? As the bottoms of cells become filled with cocoons, the bees prolong the cell-walls at the mouth, making old cells as deep as new. Moreover, a close examination of old cells will show that the narrowing toward the mouth becomes less and less till the outer edge which has been freshly prolonged can have no narrowing. Suppose, however, the cells should be found just as small at the mouth—in other words, "as small as new worker-cells," then we have precisely the case already spoken of where the workers have made a heavy rim of wax, and in that case we know that worker-eggs are laid.

Taking all these things into consideration, does it not look more reasonable that the mechanical effect of position rather than the will of the queen decides the sex of the egg? There certainly appears to be some volition on the part of the workers, for they make desperate efforts to secure drone eggs at certain times, while at others the drone-cells are as carefully avoided; and it is possible that the queen leaves the matter entirely in their hands, but it is equally possible that she has a will in the matter also. That will, however, goes perhaps no further than to select a cell which by its size or shape decides the sex of the egg. If you say that she wills a worker egg, and makes the necessary muscular effort for its impregnation, the question may be asked, "Why does she not fill a drone comb with worker eggs at a time when drones are not wanted, and give the workers the wink to build wax rims around the mouths of the cells instead of first waiting for them to make the rims? Or, when she is so anxious (if it is she and not the workers) for drones that she will go two combs outside the brood-nest to find a little patch of drone comb in which to lay, why does she not use her will power to lay drone eggs in some of the worker-cells? If she is too intelligent to lay drone eggs where she knows they would not have room enough to grow, why does she not lay drone eggs in some of the incipient queen-cells where they surely would have elbow-room?

C. C. Miller.

Marengo, Ill., July 20.

Look here, friend M. I do not know that I can help you just now in this matter you have so well summed up and arranged; but I think I can push you out into still deeper water if there is where you want to be. You have not said any thing about the experiment of removing eggs from worker-cells to drone-cells, and vice versa. As this always results in having the egg produce exactly what it would if it had not been removed, it will rather help your position. But we have another suggestion from one or more writers. This is, that the worker bees manage the whole thing by performing some sort of operation on the egg, or possibly giving the infant bee something, or withholding something just as soon as it has broken the egg-shell. Perhaps the proper kind of medicine is put around the egg to change it just be-

fore the egg-shell breaks. In that case the worker bees have entire control of the matter of sex. You know there was quite a stir made a few years ago because some one suggested that the bees have the power of making eggs laid in the worker comb produce drones when it becomes desirable to do so. For instance, if you take a frame of worker comb containing eggs in worker-cells and nothing else, and put it in a queenless hive, more or less drones will be found emerging from worker-cells; whereas, had the frame been left in the hive where the eggs were laid, there would have been no drones at all. Some of the "big lights" sat down on us rather heavily because we insisted that such was the case. Now, doctor, if you never tried the experiment, suppose you do so. If the worker bees can make a worker egg produce drones when it seems desirable, it will have quite a bearing on the point you have started.

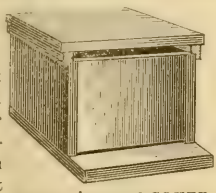
REVIEW OF DR. MILLER'S ARTICLE, PAGE 445.

DEEP SPACE UNDER FRAMES.

I HAVE only failure to record with any thing over ½ inch under frames. Comb is either built down to the bottom-board, or knobs and pinnacles of comb are put on the bottom-board to bridge the distance. I do not think the doctor will find any help from wide or thick bottom-bars. I have in use bottom-bars 1 inch, ⅞, and ⅝ wide, and ¼, ⅜, and ½ inch thick, and I much prefer a bottom-bar ¼ or ⅜ wide by ¼ inch thick, to any other, as it is so much easier to put such a frame into a hive and take it out without crowding or killing bees; and I am not sure, but I think comb is built down to it closer than one wider. All we need of a bottom-bar any way is to keep the two end-bars in place, and serve as a check to the bees in building comb downward.

COVERS.

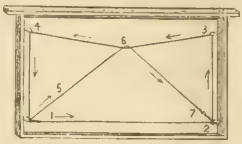
I have used flat covers for years, but I can not say I am pleased with them, for just the reasons mentioned by the doctor; i. e., the twisting and warping so as to let cold wind blow in when we want every thing snug and close. If it were not for the weight and awkwardness of the old Langstroth cap, I would adopt it at once; but it is awkward, clumsy, and expensive, and also must have a cleat all around the hive to support it, which adds to the cost and takes up so much room in the cellar during winter; also fills a wagon to no purpose if you wish to haul hives or bees. I have used a modified style of this cover, or, rather, a modified Simplicity, a few for several years, and have 70 of them now. They give so good satisfaction that I am willing to call it the best cover yet. The top should be made of two pieces, and covered with tin well painted. The rim is 2 inches deep, and rabbets ⅛ inch by ⅜ inch. It should not fit too close, so as to allow for the swelling and shrinking of the hive. No shade-board is needed with this cover, but the frames must be covered with a cloth or enamel cloth (I prefer the latter) to keep the bees out of the 1½-inch space above the frames. With a flat cover such as the Dovetailed hive has, I have not been able to dispense with a shade-board, and really that cover is the only fault I have with the Dovetailed hive, and my home yard is provided with them now, 10 frames to the hive, however. No more 8-frame hives for me.



HATCH'S HIVE-COVER.

KEENEY'S PLAN OF WIRING.

Wiring frames has never been a hobby of mine; but nevertheless when this plan was given in GLEANINGS its merits were so clear I adopted it at once, with a limited experiment on some two or three frames. I have concluded that one of the diagonal wires may be left out, and yet the foundation is held in place all right. This allows all the wiring to be done with one piece of wire, which saves all of the time of splicing and fastening, which comes so awkward to clumsy men's fingers. The inclosed diagram will show how I mean. At first I thought the other diagonal wire was the one, if any, to leave off; but experiment proved I was wrong.



HATCH'S IMPROVEMENT ON KEENEY'S PLAN OF WIRING.

ARRANGEMENT OF HIVES.

The plan of the doctor's, of setting four hives in a cluster, is all right for compactness. I tried it at first and found it was all right as far as the bees' interest was concerned; but there is no quiet alley for your wheelbarrow and tool-box to stand in; and the hive that stands just in the rear of the one you are at work with is almost sure to get stirred up and to put in a pointed protest, while the one at the side of the one you are at work with, facing the same way, I mean, if it does show irritation can be very quickly quieted by a whiff of smoke at the entrance, for you are in just the position to see them and throw in that aforesaid quieter. See, doctor? As to bees from the other row annoying, 7 feet away will be found ample room for them to get over the doctor's head, even if he has one of his three-sided stools to sit on, and is at the top notch of it. C. A. HATCH.

Ithaca, Wis., June 20.

Thanks, friend Hatch. You have given us just the facts we have wanted to know more about. The fact that the bee-space under the frames is a failure in one or two instances is worth scores of others proving that the bees did not fill this space with burr-combs. Dr. Miller, a short time ago, you remember, reported that they were a failure with him almost the first thing in the season.—I do not know but your point about narrow *bottom*-bars is well taken; and it would be, perhaps, worth our while to consider it. Who else can give us some facts from experience on this point?—Now, friend H., I do not like your cover. We have used virtually such a one for a good many years in the shape of the old Simplicity. I can not see any use in having this inch or 1½-inch space above the frames. It necessitates the use of enamel cloth, or some sort of covering. The more we use the flat cover, the more we like it. So far, in a year and a half or two years, we have had no covers that wind, that were properly made. We paint our covers on both sides;

and we do not want any more of them, as I explained to Dr. Miller some time ago, covered with tin. If the ends are let into the grooves in good substantial cleats, there will be no warping. It is true, there may be, in time, a little winding; but if there should be, the high corners can be leveled up by putting the cover under a weight in such a way as to bring them back to position. With thick top-bars, and no enamel cloths or other covers, to my notion we shall have all that can be desired. Referring again to the winding, your cover will not be entirely proof against it, I think. Our old Simplicity covers that have been used for some seven or eight years have begun to show this undesirable feature somewhat, and I can not see how a cover cleated all around is much better than one cleated on two ends, in this respect.—I like your improvement on the Keeney method of wiring. I can not now imagine why I didn't think of it before. In making the engraving I gave instructions to make the point 6 toward the top of the frame instead of toward the bottom, as you made it in your drawing. Six is very securely braced, and will prevent the sagging of a thin top-bar. It is at this point where most of the heavy strain comes. The horizontal wire 1 and 2, when reversed so as to be parallel and immediate to the top-bar, will not hold as great a weight as the wire braced as at 3, 6, 4; 1 and 2, immediate to the bottom-bar, is not required, usually, to support any weight of honey, so I should prefer to begin at No. 1 to bring point 6 next to the top-bar, rather than to bring 6 near the bottom-bar. I understand the reason why you prefer to have the horizontal wire near the top-bar; and that is, to keep the foundation from folding over, which it is liable to do if wired as shown above. But to prevent this, cut a wide groove on the under side of the top-bar, and push the end of the foundation up into said groove. Then imbed the foundation on to the wires. We have tried frames wired as above, and they worked beautifully. Our thanks are due to you, friend H., for suggesting the use of one wire only. I believe it will be strong enough for all purposes; and it is at a considerable saving of time over the two-wire plan.—Let us hear from you oftener, friend H., by way of criticism or otherwise. Your pen smacks of experience. E. R.

ANOTHER METHOD OF GETTING BEES OUT OF BOXES.

NO USE FOR HONEY-BOARDS.

I SEE quite a good deal in GLEANINGS about getting bees out of boxes or section-cases, bee-escapes, thick top-bars, etc. I will try to tell you how I have managed for some years past to get bees out of surplus cases, not to have any robbing, and but few stings. I commence to take off honey any time when it is warm enough for the bees to fly nicely. I start the bees down with smoke, then take off the case quickly, turn it over on my left arm, and brush them with goldenrods when in bloom. The bees don't seem to get cross when brushed with goldenrod tops. I brush the bees from the lower side of the case down in front of the hive; then set the case on a stand near the hives I take the cases off from, and pile them up as high as convenient. I have an empty case with thin muslin tacked on the top, which I keep on the pile of section cases. I keep right on taking off cases until I get off all I want at that time. If it is off from a hundred hives it would be all the same. Then if the bees are lively I can go to the first pile with brush in hand, take off the muslin case and brush the bees from the top of the honey-cases and give the muslin case a quick shake and put it on the cases and go to the next pile; and in a short time I have the bees all out without any robbing or stings. If there happen to be brace-combs, so much the better, for the bees will go for the honey and seldom uncap the honey in the sections. The same is true of the frames I have been using lately. They have thin top-bars plump ¼ inch thick. That accounts for the brace-combs on some hives. Now, I have tried a number of different ways to get bees out of sections; but the way I have described above suits me the best.

THICK TOP-BARS.

I wish to write a little about thick top-bars, so I will go back a little. I have been keeping bees nearly 24 years. I was first attacked with the bee-grip in 1866. While I was working on a farm near Davenport, Iowa, I happened to be at one of my neighbors in harvest time. At dinner they had some genuine clover honey on the table. He kept 30 or 40 hives of bees in Langstroth hives. He had Langstroth's book on bees, which I read some that noon. In the fall I was at Davenport at the county fair. There I saw the Child's patent bee-hive. I was taken up with it so much that I invested $30 in rights, etc. I use the hive now to store bee-papers in. I should like to give you a little of my experience with that hive, if I had time. I made some hives with frames that hung on hinges; and to handle them (as there were no projections) I made my top-bars ⅝ inch thick, with a groove on each side, made with a round plane. I don't remember of ever being bothered with brace-combs. My top-bars were always clean. I had a plump ¼-inch bee-space between sections and hive. I have used thick top-bars most of the time since I have been keeping bees.

I believe the queen-excluders are a good thing, but I have no use for break joint honey-boards. Perhaps I should have both on hand now if I had not used up my surplus change in two trips to Florida and one to Cuba. For the past three or four years I have got the most honey with the least work and the least stings I have ever got. I have never failed in getting some honey to sell since I have been keeping bees. I never have fed 10 lbs. of sugar to get one lb. of honey. This is a poor section for white honey. It is a buckwheat and goldenrod section.

The honey-case I am using at present suits me best of any thing I have ever had. I can put on 28 sections with separators, or 32 without, or half the number if I wish. I used to dread to clean up sections for market, but the way I have them now it is a pleasure. This year I have sent sections to market that were nearly as clean as when they were put on the hives. I have a wide frame that holds four sections. When the sections are full they will weigh exactly 1 lb., without glass. They are held in the frames with a thin wedge or a couple of wire

nails. They want a little play, say 1/16 inch or 1/8, to come out easily. After I put the sections into the frames I don't take them out until I send them to market. BEN. FRANKLIN.

Franklinton, N. Y., Feb. 1.

Friend F., your plan of getting bees out of boxes is substantially the same as I described a year ago, while on a visit to Dr. Miller, if I am correct. Thanks for your suggestion of a good use for patent beehives. Keep them for storing bee-papers.

ARE BEES TAXABLE PROPERTY?

SOME GOOD ARGUMENTS IN FAVOR OF TAXING THEM.

Friend Root:—I see, in reading over GLEANINGS for July 15, 1890, where Jas. R. Whipps asks the question whether all bees are taxed (or, in other words, assessed). I will say that, to the best of my knowledge, they are not, especially here in Wisconsin. I am well convinced that it is not a State law, but done by officers of the different townships. One illustration will convince any one. In the town of Boscobel, where there are quite a number of apiaries, all No. 1 swarms are assessed two dollars each that are owned on the first day of May. But in the town of Marion, just south of us, bees are not taxed at all.

Day before yesterday I had a short conversation with Mr. France, of Platteville, Wis., and this same subject of taxation came up. He told me that a part of his bees were assessed and a part not, all owing to the different townships they were located in. So you can see that it is governed by the several townships instead of the State. But if I had my own way about taxing bees, you may rest assured I would assess every one of them. If a man has $500, or $1000, and perhaps much more, invested in bees, tax them just the same as sheep, cattle, horses, or, in fact, any other kind of property; and in my opinion, when this is universally done there will not be as much fault-finding by parties who are not in the business; and if litigation should arise, I am sure that it would be much more difficult to declare them a public nuisance than if they were exempt from taxation; and my advice would be to insist on an assessor listing them every time. B. E. RICE.

Boscobel, Wis., July 20.

AGAINST TAXING BEES, BUT IN FAVOR OF TAXING HIVES AND FIXTURES.

On page 531, current volume, Mr. Jas. R. Whipps seeks information of you as to whether bees are assessable property in the different States. No more important question is presenting itself to our fraternity. For 25 years no assessor in our district has had the audacity to assess bees; but I am now surprised by a ticket being presented for last year's assessment, made in my absence. Custom makes law, therefore it is against the law in this State, without a special statute providing for it. I know what has been your position in the matter; but, while no one respects your judgment more than I, I feel that I shall be supported by the majority of bee keepers in this position; viz., that bees come under the head of wild animals, uncontrollable, and very greatly subject to the vicissitudes of climate and disease. An apiary may be assessed in March; in May, not a bee may have survived. Where is the justice? I, for one, say assess hives and fixtures, but not the bees. I propose to make a test case of it in this State, and to call upon brother bee-keepers in the State to aid me. J. C. CAPEHART.

St. Albans, W. Va., July 24.

Friend C., we would advise you to read the article at the head of this. If you class bees as wild animals, uncontrolled, and exempt from taxation, town councils might then with some justice declare them to be a nuisance. No, sir, friend C., let us pay taxes on our bees, and consider them as animals under control, like any ordinary stock. If any disgruntled neighbor wants them removed, you can then declare them property, like any other property, because you pay taxes on them.

FIXED DISTANCES IN ENGLAND

INDISPENSABLE, AND WHY NOT IN AMERICA?

My Dear Friend:—For by that title I assume to address you, though I have never before written to you; yet, as a fellow-apiculturist, I claim the right. I have of late had the opportunity of reading GLEANINGS (i. e., since the departure of my friend W. B. Carr for London, and my taking the house till then occupied by him), and I am not a little exercised at the discussion which appears therein about "spacing of combs." In this country the custom is, almost universally, to use metal ends to space the combs; and the convenience of them is something to be wondered at—no shifting of combs when lifting—great security when moving the hives to any distance, as, instead of an inch bearing at each end of top-bar there is a bearing of 1 9/20 inches. Why, then, I ask, is it that in your country you appear to ignore these very useful adjuncts to the apiary? With the metal end known as the W. B. C., it is possible, without removing the end from the frame, to get any distance from 1¼ to 1½ inches, and this, I take it, is as much as is required by any apiarist. It seems to me, at this distance, that Dr. Miller is somehow considerably prejudiced against ends of any description; and though in his discussion pro and con, page 451, he has endeavored to argue the point out without bias, he seems to me to be unable to quite get rid of that prejudice.

Further, it seems strange that you on your side should now be going over and over again, grounds that were here settled years ago.

In conclusion I would say, let ten or more American apiarists each work, say, three hives with W. B. C. ends for a season, and then report fully what advantages and disadvantages they found from their use, and I am inclined to think that A. I. Root and others will have to stock another article. HAROLD H. LINDON.

Liverpool, Eng., July 7.

We are very glad to get your testimony, friend Lindon. We were well aware of the fact that your countrymen used, generally, fixed distances, though we have not called particular attention to it, because national peculiarities and climatic conditions might not argue for it in this country. Still, if fixed distances are necessary with you it would seem that they would be almost indispensable in America, with its many systems of out-apiaries, necessitating, as they do, more or less moving of bees. Thanks

for calling attention to the W. B. C. metal ends. We will try to illustrate them soon.

BROOD-COMBS.

OBJECTIONS TO THE WIDE SPACING OF BROOD-COMBS.

The following article we take pleasure in copying from the *American Bee Journal* of July 19. The arguments presented for 1⅜-inch spacing are convincing.

I have watched with great interest for the replies to Dr. Miller's articles on page 214 and 365, relative to the proper spacing of brood-frames. If the doctor holds himself in readiness to be convinced by the reports of the box-hive men, I have no doubt he will adopt the 1½-inch spacing. The bees evidently plan for a large amount of store-room above the brood, and as a consequence the combs in box hives and hollow trees will usually be found to average 1½ inches from center to center. Thick combs above necessitate wide spaces between brood-combs below, and I have no doubt that, in a state of nature, this is the best possible arrangement for safe wintering. But when bees are wintered in the cellar or in chaff hives, I am of the opinion that this matter of close or wide spacing cuts a very insignificant figure.

I am fully satisfied that wide spacing is "nature's way," and I am just as fully satisfied that I can not obtain the best results in comb-honey production by following it.

Three years ago, when I adopted the Van Deusen metal corner for brood-frames, I adopted the 1½-inch spacing with it, for the irons were not then made any other width; but the stern logic of facts has compelled me to go to the expense and vexation of changing to a closer spacing. Now let us see why:

Since brood-comb is only about ⅞ of an inch thick, the 1½-inch spacing permits a considerable thickening of the upper part of the comb for storage purposes. If the whole upper part of every comb were equally thickened, no great harm would be done, but such is not the case. All conceivable varieties of thickness and thinness occur, the undulations of surface on each comb conforming to those adjacent combs, rendering it, in many cases, impossible to change the relative position of combs in the hive. Such combs will not fit anywhere, only where they were built, unless they are shaved off, and who wants to handle frames under such conditions?

The next difficulty with the wide spacing is a little more serious, for it affects the brood-rearing capacity of the comb. Every bee-keeper knows that worker-brood is seldom if ever reared in cells more than seven-sixteenths of an inch deep; and it is evident that, the greater the area of thickened comb, the smaller the brood area will be. Colonies that have a tendency to store honey in the brood-chamber will thicken an undue proportion of their combs, thus restricting the queen to the lower part of the central combs. It is useless to argue that the bees will cut these cells down when needed again for brood—they will not do it, as I have learned from sad experience. There are many combs in my hives, that, by improper reversing, were made thick at both top and bottom. In the center of these combs is an oval area of brood comb that comprises probably one-third of the entire area of the comb. This is the second season they have been in that condition, and I can not determine that the bees have cut down a single cell for the purpose of brood-rearing.

A third objection to the wide spacing is, that, so long as the bees are amply provided with storage comb in the brood-chamber, they are slow to enter the sections. The reasons are obvious. The limited brood area has reduced their numbers, and an ample supply of honey in the brood-chamber has removed all anxiety to provide further for the future.

At my earnest solicitation, the width of the Van Deusen metal corner was reduced to one and eleven thirty-second inches, and hereafter all my brood-combs will be spaced that distance from center to center. Whether that is just the right distance or not, I do not pretend to say; but I know from previous experience that it suits me much better than the wide spacing. Z. T. Hawk.

Denison, Ia.

Mr. Hawk's experience re-echoes our own, except that we find that sealed worker-brood is about an inch thick. However that may be, Mr. H.'s point (that *more* brood can be reared on narrow spacing) is well taken. The fact that brood is not raised in deep cells is a pretty convincing argument for the narrow spacing.

WOODMAN, SPARE THAT TREE.

THE ENORMOUS CONSUMPTION OF BASSWOOD IN OTHER DEPARTMENTS OF TRADE BESIDES THE BEE-BUSINESS.

I read the article on page 490, entitled "Woodman, Spare that Tree." While it is a fact that our basswood forests are being rapidly destroyed, friend Markly probably is not aware that the uses he mentioned for basswood cut but a very small figure in its destruction, if taken alone. All of this part of the State of Wisconsin has been a heavy basswood region; and but a few years ago, before the destruction of the pine forests, basswood was held as of but very little value. But as soon as pine timber became scarce, basswood began to be used for flooring, for sheeting-boards, for siding, scantling, and general building purposes. Then came its use for barrel-staves and heading, for wagon-boxes and other light upper work for buggies; for berry-boxes and crates; for excelsior; for the veneer-mill for the manufacture of material for shipping plants, etc. After every large tree had been cut for these various purposes, the small trees came in for making broom-handles. This is only a partial list of its uses. You will see that the bee-business takes but a small portion of the amount consumed. It is estimated that, within a radius of a few miles around here, the yearly consumption of basswood for the various purposes mentioned amounts to over twenty million feet annually, until now basswood-trees are few and far between. If other woods were used, whitewood and poplar would take the place of basswood, and make just as good sections.

Another thing to be considered is, that until recently cattle have been allowed to run at large, and these are very destructive to young basswoods; in fact, it is almost impossible to find young basswoods growing where cattle run. Now that cattle are restrained wherever we go, we find young basswoods growing thickly, and in a few years (unless wantonly destroyed) they will take the place of the old crop of trees already cut, and gone. A few days ago I went into the woods for the purpose of getting at the facts, and I counted about 40 trees from 2 to 4 feet high on less than an eighth of an acre, so that, while basswood honey will be scarce for the present, the young trees will take the place of the old ones in the near future; then after all it may not be looked on as a thing of the past, for basswood-trees grow rapidly, and bloom quite young, possibly in six or eight years from planting.

Clintonville, Wis., July 13. Daniel Noble.

Friend N., I am glad you have taken up this matter of keeping cattle away from young basswood-trees. Bee-keepers who own basswood timber should by all means keep their cattle out of the woodland. The

value of the food for pasture is but a small item compared with those trees. They grow so rapidly that it is going to be one of the most promising trees to raise for timber. Many of ours planted, 18 years ago, would now make a nice lot of sections, and cutting them off would harm the root scarcely at all, for young shoots start out with astonishing rapidity, and these young shoots produce both blossoms and timber in a very few years.

SPRAYING BLOSSOMS, ETC.

ANOTHER CAUTION IN REGARD TO THE USE OF ARSENITES.

GEO. E. HOVEY, Holland, Lucas Co., Ohio, has a cranberry marsh. The blossoms are still attracting the bees, but the cranberry fruit-moth is already engaged in laying her eggs. He wishes to know if he may spray his vines with the arsenites while the bees are still at work. I should advise never to spray any blossoms on which bees work. It is never safe. The fact that both brood and mature bees are poisoned by such a course makes it seem dangerous to do this. Who knows but there may be enough poison to make the honey poisonous to man? I should not wish to purchase such honey. In most cases it will be time enough to apply the poisons after the blossoms cease to attract the bees. I would advise Mr. Hovey to try the kerosene emulsion. Very likely that would be as effective as the arsenites, and that would be safe. If that does not kill the larvæ I would suggest the use of buhach. These would very likely effect a remedy for the pests, and they certainly would do no harm.

THE CALIFORNIA BEE-KILLER.

Some years ago the late Mr. Enos sent me a curious animal of the scorpion group, which he stated was a serious enemy of the bees. Except it is so rare it would be a terrible pest. Now, Mr. R. A. Hadly, of Fillmore, Ventura Co., sends me another of the same species. He says he had kept it for some days, and fed it on bees. It ate nine in one day, and some of these were drones. He says, "I put several bees into the cage with it, but I suppose they will all be disposed of before it reaches you."

Mr. H. was quite correct. The bees were all devoured, and the datames was dead. Indeed, it looked lank and shriveled, and as though it really died of starvation, which I dare say was the case. I have described this curious animal, with illustrations, on p. 431, last edition of my Bee-keeper's Guide. The excellent cut—Fig. 221—gives a very correct idea of this strange specimen. I named it the California bee-killer. It is a datames, possibly *Datames Californicus*. It seems to have four jaws. Each jaw is divided horizontally, and these peculiar pincer-like jaws—see figure in bee-book—are very formidable-looking organs.

This unique specimen belongs to the spider subclass, as is seen by its eight legs, simple eyes, and the absence of antennæ. Its long-jointed abdomen and palpi, which look like a fifth pair of legs, place it in the scorpion order, or pedipalpi, so named because the palpi resemble true legs. Thus the species and its group are related to the scorpions, whip scorpions, of which we had so much last year, and the harvest-men, or grandfather graybeards. The family is *Salpulgidæ*, a small and little-known group. One, *Datamis pallipes*, is said to feed on bed-bugs, while we know that the species in question feeds on bees. The habits of the others have not been described. A. J. COOK.

Agricultural College, Mich., July 8.

SELLING SECRETS FOR A SUM OF MONEY.

A FURTHER CONSIDERATION OF THE SUBJECT.

THE amount of correspondence, pro and con, in regard to this matter seems to call for something still further on this subject. I may say, however, that the greater part of the communications indorse the stand taken by GLEANINGS. Perhaps half a dozen letters have been received on the other side all together; and of those half-dozen, at least four are from ministers of the gospel. These are more lengthy than the others, and some of them take GLEANINGS to task quite severely. Please let me give you a little of my experience in purchasing secrets.

When I was a boy in my teens, away from home, I met an agent who had a wonderful secret for making burning-fluid. To show me that it was non-explosive he unscrewed the top of the lamp, plunged a lighted match in it, rolled the lamp on the floor while burning, and performed various other tricks, until I was so excited that I gave him my watch, all the money I had in my pocket, and would probably have given my boots too had he not said that, under the circumstances, he would let me have the secret without them. When I went to a druggist to have it put up he told me that my compound was simply ordinary *camphene*. Some annotto was added to make it look yellow like oil, and some alum was put in to make it *non-explosive*, which did nothing of the kind. The camphene would explode, exactly like any other camphene or burning-fluid, when the lamp was nearly empty, as I demonstrated to my sorrow, before an audience of people. A lamp *filled* with any thing can not explode. The agent who took my watch and money falsified, and humbugged me in every particular.

Some years afterward, when I was a jeweler carrying on a shop of my own, a smooth-tongued chap came into the store with a piece of common iron rod for a cane. On the end of this rod was a coating of silver, perhaps as thick as a silver dime. He informed me that he had a secret for silver-plating that would put silver on to iron or any other metal, in any desired thickness, in a few minutes, and that the silver tip on his iron rod was done by the process. I became excited as before. As I hadn't very much money I scraped up my money and valuables in the attempt to raise $50.00 to buy the secret. Remembering my former experience, however, I made a bargain before witnesses, that, after reading over his recipe, if I did not consider it reasonable he was to let me off, or coat the other end of the iron in a like manner right before me, and show me how it was done. He was going to put the things in his pocket, but I bade him hold on. When I came to read

the secret I found that it was something known to jewelers for years, and was what is familiarly known as the "cyanuret" process. My indignation arose at once. I told him before the witnesses that he was a swindler, a liar, and a thief. May be I was not Christianlike, but I did not profess to be a Christian at that time. He told me quietly to be careful what I said, and was so gentlemanly about it that I began to fear I had made a mistake. Finally I said, "My friend, when you came here telling me you put that silver on the iron rod by that process, I think you told me a deliberate falsehood; but to settle the matter I will give you *$100* if you will coat the other end of the rod in a like manner, by the same process, and you may have 24 *hours* instead of 15 *minutes* to do it in."

He very smilingly told me it would afford him the greatest pleasure to show me my mistake and to accept my apology, and bowed himself out with such composure that I was in great trouble for fear he should succeed. He said he would go to the hotel and get his apparatus. I watched nervously for his return. In about half an hour a neighboring jeweler came to the back door with $25.00 in his hand, saying he had got it all ready to hand to an agent for a silver-plating process, said agent representing that I had just paid him $50.00 for a shop-right for the same thing. My neighbor said that he had almost handed the money to the agent, for the man seemed so honest and straightforward; but to be perfectly sure, he told him he wanted to go out the back door for a few minutes. I was in a fighting mood by this time, and together we started for my neighbor's shop. The man stood in the door; but when he saw us both coming at a rapid rate, he put off at such a lively speed that we gave up the pursuit. Now, for more than thirty years I have had similar experiences. Some of our readers know that I have paid out money again and again to *see* if there were any honest men selling secrets. Many of you remember our friend H. H. Flick who had a recipe for artificial honey. I paid him $2.00 for it, and then found it was the same thing that has for years been printed in Dr. Chase's recipe-book. I have talked the matter over with Prof. Cook, with the presidents of our horticultural societies, and with those who have charge of our experiment stations; and their universal verdict is, that *no good thing* has ever come through such a channel. The man who will take $4.00 for something that does not cost him *as many cents* is off from the track, and out of line with the rest of humanity who are seeking to do good and to enlighten their fellow-men by every honorable means in their power. Many of you have perhaps seen the result of such work. If one man can sell something for $4.00 that costs him only 4 cts., so can others do likewise, and a panic is created at once. Every little while we get a circular offering counterfeit money for sale. Now, although I do not expect to purchase counterfeit money, I read these circulars through very carefully. They start out something like this: "I suppose you know that it is universally conceded now that no man can acquire a competence by regular day's work. It is too slow, and our moneyed men get their money in some other way. You have as good a right to get yours by a shorter cut as the rest of them. The goods we sell you are absolutely safe. In fact, they are so like the genuine that nobody can tell the difference. We furnish them for 4 cts., and you get a dollar." Now, whether it be patent-rights, selling secrets, or any other inducement that persuades you that honest, hard work, is too slow and laborious, the effect is mischievous. It is encouraging that spirit that fills our penitentiaries. And where one man is privileged to make money in this way, it is hard work to persuade people that they have not "as good a right," as the counterfeit-money circulars put it.

Imitators of Dr. Hall are already sending out their circulars. The effect on almost any community is like that of starting a whole apiary of bees to robbing during a dry time. Most of you have seen traveling men who sell dollar bills for 10 or 25 cts. apiece. The idea is so exciting that the gambling spirit is stirred up at once. Church-members, and even deacons, are oftentimes first to get crazy. Almost every community can furnish some instances of such occurrences.

Now, then, suppose we have made a discovery, or have revived something that has been dropped, that is of great value to humanity, and saves life. How shall we communicate it to our fellow-men? Why, by books and journals, as a matter of course; and these books and journals should be sold at a fair and moderate price. Our industrial publications are constantly giving information, to the fullest possible details, in almost every line of work; and good-sized books are now published on almost every subject imaginable. As soon as the need of such a book is felt, somebody is found ready to bring it forth. Riding on the cars a few days ago I glanced over my neighbor's shoulder, who sat near me, and I found he was reading a very prettily bound and illustrated book on lighting buildings by electric lights. The matter interested me because a lot of new words had just been coined, of which I should never have known the meaning had it not been for overhearing the talk of the men who recently put up electric lights in our own building. Now, rest assured, dear friends, that just as soon as any thing comes up that is really valuable, a good, fair-sized book, at a fair customary price, will soon appear, making it known to community at large. Before the book comes out, as a general thing the fullest particulars will be given through the proper periodicals. As an illustration, I will mention the silo business. Why didn't somebody charge $4.00 for this? and would they have done more good by communicating something of so much value, by charging so much for it that whoever purchased would be sure not to let it drop because it had taken hard-earned dollars? If the good friends who criticise so severely will just suspend judgment a little while, they will, I am sure, in a little time have abundant reason to con-

clude that your humble servant has not made such a very big mistake after all.

What I have said has, of course, no reference to a manufacturer selling out his processes with his business and good will, to a purchaser, as is right and proper. But selling secrets broadcast, and advertising them broadcast, with or without a promise to tell, is an entirely different thing.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 165.—*Suppose that, at the beginning of the honey harvest, I remove the queen of a colony before the bees get the swarming fever, and give them a young queen that has just commenced to lay, how long after giving the young queen can I feel secure against that colony swarming?*

We do not know. We never try such means.
Illinois. N. W. DADANT & SON.

From my experience I would say it retards them almost none.
California. S. W. R. WILKIN.

I do not believe any one can answer this. It varies greatly with queen, bees, and season.
Michigan. C. A. J. COOK.

There is no safety with a young or old queen. A swarm may issue at any time, other things being favorable.
Ohio. S. W. C. F. MUTH.

In a season when the swarming fever runs high it does not check them long; in other words, it doesn't pay to make the change.
New York. C. P. H. ELWOOD.

It depends upon the weather and honey-flow. If the above conditions are favorable, they will be ready to swarm in ten days.
New York. E. RAMBLER.

Just so long as the bees do not swarm. With me, with the Italian bee the above has little or no influence toward preventing the swarming fever.
New York. C. G. M. DOOLITTLE.

I have not tried the plan enough to say definitely. It would depend on the size of the colony, size of hive, character of the honey-flow, and several other things.
Illinois. N. C. J. A. GREEN.

I don't believe that taking away one queen and then giving them another laying queen will prevent swarming. I have had several swarms come off with young queens just after they commenced to lay. In some cases not over a dozen eggs were laid.
Wisconsin. S. W. E. FRANCE.

Giving a young queen as described will greatly lessen the chances of swarming for the season, but it is not a positive cure, for at certain times the swarming impulse is so strongly developed that nothing but the removal of the queen will control it.
Wisconsin. S. W. S. I. FREEBORN.

It would be a very practical way of lessening the swarming, but it can not be considered an entire preventive. Bees sometimes astonish us by the way they have of doing things; and especially is this the case in regard to swarming.
Ohio. N. W. H. R. BOARDMAN.

I can only guess at it. Perhaps in most cases they would not swarm that year, and at the earliest I should not expect them to swarm within four weeks. If the bees already had the swarming fever they might swarm within a day or two.
Illinois. N. C. C. MILLER.

If your colony has been building up rapidly, and has a huge lot of brood, many young bees, and comparatively few old ones, your remedy wouldn't work, I think. At least in my apiary I should expect them to swarm very much the same as if no change had been made. The swarming difficulty is a much tougher problem than some of the brethren estimate it.
Ohio. N. W. E. E. HASTY.

I have never tested it—that is, while I have frequently given young queens to colonies in the early honey-flow, I have never noted or made a record of any difference in the swarming time, from that of other colonies that were not touched; hence I conclude that the strength of the colony, honey-flow, climatic conditions, etc., have more to do with the time of swarming than any change of queen.
Illinois. N. W. C. MRS. L. HARRISON.

That depends upon circumstances—that is, on the condition of the colony and the season. I have known it to prevent swarming entirely with some colonies, and with others they would swarm in from six days to two weeks after introducing the young queen. It is safer to leave them queenless 12 or 15 days, then give them a virgin queen, and you are pretty safe against swarming.
Vermont. N. W. A. E. MANUM.

If the bees are shaded, and have plenty of room, usually the colony thus treated will not swarm at all that season, but sometimes they will; and it is the "sometimes" and the labor, trouble, and expense of the method, which are the reasons it is not in vogue to-day, notwithstanding it is over a dozen years old. I remember one leading bee-keeper who experimented on this line, carefully, over fifteen years ago, and he gave it up, and so have all who have followed him.
Michigan. C. JAMES HEDDON.

Well, I am a little surprised to see so few favoring a young queen to discourage swarming. Friend Freeborn seems to be almost the only one to give us any kind of encouragement; and I should rather gather from the answers, that the condition of the colony has more to do with it than the age of the queen. By the way, has not this question some bearing on the matter of preventing the building of drone comb by giving the new swarm to the young queen? You will remember that friend Hutchinson, in his book, thinks young queens are quite an advantage where bees do not have foundation in the brood-nest in hiving a new colony.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BEES STEALING EGGS FROM ANOTHER HIVE.

Friend Root:—On page 497, July 1, you say to Mr. McGaughey that bees will sometimes transfer eggs from one comb to another. Now I want to ask you and others whether bees were ever known to transfer eggs from one hive to another. Last season I purchased of Mr. A. L. Swinson, of Goldsboro, N. C., an albino Italian queen and two pounds of bees, and put them on some frames of comb. This was the first of June; and along late in July I had an after-swarm of blacks. Not knowing from which hive they came I put them into a hive and set it near the hive of albinos. In the fall I put on them a case of unfinished sections and packed them in planer shavings, the same as I do all my bees. They came out very weak this spring, and I paid but very little attention to them till some four weeks ago. I noticed some bright yellow bees going in and out of the hive. At first I thought they were robbers, but I soon saw that they belonged there. Now, there is no difference between them and the bees I got of Mr. Swinson, and the drones are fully as red as are the albinos. I examined them a few days since, and found four frames almost full of brood, and as nice and bright a queen as I ever saw. Did they lose their queen, and borrow some eggs of their neighbors? P. L. NORTON.

Lanesboro, Pa., July 16.

Friend N., we have had several reports seeming to indicate that worker-bees do at times steal eggs from a neighboring hive, with which to raise a queen. Notwithstanding, while there are other ways of explaining most of the cases reported, I am inclined to think it somewhat doubtful. In the above case your hive must have become queenless by some vicissitude. Now, during swarming time the queen may have got away from your albino hive, and got into this one. They might raise another without your knowing it.

RAISING BROOD IN A FRAME LYING HORIZONTALLY; THE SHALLOW SHIRLEY HIVE.

I have just finished a curious experiment, such as I never saw in print, or ever heard of. Perhaps you would like to publish it. I should like to learn whether any one else ever did the like. I put up two colonies of bees, one on top of the other, last fall, and lately (in the middle of June) I took them apart, set them near together to equalize, and now they are both working in sections. They were in the new Shirley hive. It has closed-end frames, and is only 5½ inches deep, and has single-story case (or hive) made on purpose to tier up for winter. I put a queen-excluder on top of the lower hive, then laid a heavy Langstroth frame (of honey) flat on top in a frame that made a rim to fit top of lower set of frames, and then set the upper set of frames, bees and honey, queen and all, on top of said rim. Each bee could help itself to the flat comb of honey, as they were both rather light in the fall. They came through in tiptop order, one of the best in the whole yard, out of 130 put up last fall. Another hive, put up in the same way, with an L. comb of honey between the two stories, came out well, and had the comb that was lying flat, filled with brood, top and bottom side as well—"head and tails." They also stored new honey in it, top and bottom sides as well, rather ignoring the theory of cells sloping upward to better hold honey from running out. J. O. SHEARMAN.

New Richmond, Mich., June 21, 1890.

MORE BASSWOOD USED IN FURNITURE THAN IN SECTIONS.

I see a great deal in the bee-papers about using so much basswood for sections, but nothing about other places where it is used. I believe there is a great deal more used in the furniture factories, as I work in one. I believe we use as much if not more than you do, and a small factory at that. I believe friend Boardman says he will not buy any sections of basswood. If he examines his furniture I think he will find basswood in it; at least, we put it in every suit we make, and some are almost all basswood.

WHITE-HONEY CROP SMALL.

The white-honey crop will be small in this section, or, at least, for me. I had thirty colonies in the spring, and took the brood from ten and made twenty good and strong. It commenced raining, and we had bad weather from fruit-bloom till after clover was half over, so when they should have been swarming they were killing off their drones. I had only six swarms, and other years I had more than I wanted. F. S. BERRY.

Montoursville, Pa., July 12.

WHY FLORIDA IS SOMETIMES LATE.

Last spring I gave the reasons, at least apparent to me, for which orange-tree blossoms gave honey; the same cause is yet more striking this year, and my bees have been rearing brood on orange-blossom honey for the past three or four weeks, with good prospect for another month.

But what a contrast with last year! by the 25th of March all the bees had swarmed; whereas so far there has been, in this section at least, not one swarm, and no prospect of any before two or three weeks. What makes such a difference of two full months? A continual drouth of six months that has kept back the trees from their ordinary habits of blooming in February and March. It is no wonner that we can not supply queens as early as some parties would like to.

THE RED ANTS OF FLORIDA AS DESTRUCTIVE ENEMIES TO BEES.

In reading in your A B C about ants, I had to smile. Our red ants here are Jumbos compared to yours, and boiling water does not seem to affect them. I have seen a whole swarm of bees decamp from their hive in the middle of the night, and crawl, beating their wings, to neighboring hives. They had been overpowered and were slaughtered unmercifully by their red foes. And the remedy? Well, I have been experimenting on several, but I won't tell just yet which is the best.

Winter Park, Fla., May 19. J. B. LAMONTAGUE.

THE SUPERSEDURE OF QUEENS; TWO QUEENS IN A HIVE.

In the superseding of queens I think it rarely ever happens that the old queen is killed by her daughter; but when the old lady commences to fail, the workers may not start a queen-cell at once, and she may drop off very suddenly, leaving them without any queen at all, and she may linger on and lay a good many eggs, though very scattering, after the young queen commences to lay. Some four or five years ago I traded for a lot of

black bees. When I Italianized them I took six laying queens out of three hives, and this spring I took notice of one of my best queens failing before a cell was started. I saw the young queen before she commenced to lay; and the other day, when I looked to see whether she was all right, she and her mother were laying on one frame, and on the same side, and at times would walk past each other not more than an inch or so apart.

Fairview, Md., July 7. C. M. HICKS.

ANOTHER FERTILE QUEEN THAT CAME OUT OF THE HIVE ALONE.

Did you ever know of a queen to come on the outside of the hive, that is an old one? She is two years old. Can you give any cause? The bees are working all right in the sections.

Swartz, Pa., July 14. A. A. SIMPSON.

Yes, friend S., we have known old queens to come out of the hive. It is, however, not a very common occurrence. I once saw a queen a year old or more come out on the alighting-board, and then go back. At another time a queen was found on top of the honey-board when the cover was removed from the hive. Others have reported seeing them come out and take wing; but it is probably quite a rare thing.

WHY DID THE BEES KILL OFF THE DRONES IN JUNE, WITH PLENTY OF HONEY IN THE HIVES?

I see in GLEANINGS where other people have their drones killed off in June. They were killing off the drones with me too, and, worst of all, with me they killed five of my best queens, and they had lots of honey at the time. Can you give me the cause? The bees were drawing them out alive, and I would take and smoke the bees and put them back, but all in vain. They would take them out again, and she had the comb well filled with brood at the time. D. B. MCMILLAN.

Mikado, Mich., July 7.

I too have known bees to kill not only the drones, but their queens, during a great dearth of honey; but I never knew them to do this when honey was coming in, even in a small quantity.

OUR FRIEND BOOMHOWER'S MISFORTUNE.

We have met with quite a misfortune, and I thought I would write and let you know of it. On the 17th of this month my papa was in a neighbor's barn getting hay, and he fell from the mow, about 22 feet, fracturing his right wrist very badly, and he had a large gash cut over his eye, and his face is bruised very badly. We are in the midst of our bee-work, and he is disabled so that he can't do a thing. But it was a very lucky fall, as he might have killed himself. He struck on the bare barn floor. Our bees are doing very well so far. We don't remember when they have been in better shape for working. But we have no one to help us with them now, and don't know what we shall do. I hope the bees at the home apiary are doing well.

EDNA A. BOOMHOWER.

Gallupville, N. Y., July 21, 1890.

USE OF TERMS; THE EDITOR SUSTAINED.

I should like to say in regard to the poplar question in GLEANINGS for July 15, that I think you are nearer right than Mr. Touchton in your use of the name. Webster defines poplar as "a tree of the genus *Populus*, of several species; as, the black poplar, aspen-tree, etc." The tulip is an American tree, and the name poplar can have been applied to it only since the settlement of America, while in the Latin form, *populus*, the name has been applied to trees of the aspen genus (including quaking aspen, cottonwood, balm of Gilead, Lombardy poplar, etc.), for over two thousand years. Of course, popular names are decided by usage; but I think that more people will understand if you call the aspen and trees of that genus "poplar" than will understand if you call tulip-tree "poplar."

Oxford, Ct., July 26. E. B. HARGER.

ENCOURAGING FROM TEXAS, FOR HORSEMINT.

I left Sarnia, Ont., Canada, in December, 1889, for Cameron, Texas, to take Mr. E. Y. Terral's bee-yard No. 2 on shares. I found, when I came here, 45 colonies, a number of which were weak. I moved them to a new location 12 miles away. I increased them to 63, and extracted about 3100 lbs. of nice horsemint honey. Friend Root, you would be delighted to see the great fields of horsemint. It beats our fields of white clover in the north.

A GOOD REPORT FOR THE STANLEY HONEY-EXTRACTOR.

I extracted alone, in one day, with the Stanley, 48 gallons, taking out the honey, and uncapping it and putting back the empty combs alone. The next day I took alone 40 gallons. I could not have done that with a small two-frame extractor, and two helpers. T. H. MILLS.

Cameron, Tex., July 14.

REPORTS DISCOURAGING.

MANUM'S CROP VERY SMALL.

As the honey season is over here I send you a brief report. This being the "off" year for basswood we did not expect much from that source, though we sometimes get a little; but this year none. Owing to the wet and cold June there was but little chance for the bees to work on the abundant bloom of clover, hence our crop of honey is very short. I shall not get over 6 or 8 lbs. per colony, and but very little increase—not enough to make up the loss in winter. A. E. MANUM.

Bristol, Vt., July 21.

HONEY CROP A TOTAL FAILURE.

The honey crop for Missouri so far is almost a total failure. A drought of three weeks the latter part of June and up to the 10th of July killed white clover and other flowers, and some bees at present are in a starving condition. Colonies that were strong the first of June stored enough honey to last them until fall flowers appear. Since July 10th we have had sufficient rain to insure a good fall flow, other things being favorable. The opening of the present season was very promising. Never before in this section was there so much enthusiasm shown and interest taken in bees, though now all is quiet, bees as well as bee-keepers. The scarcity of honey in our section will hold prices firm.

JNO. NEBEL & SON.

High Hill, Mo., July 19, 1890.

POOR YIELD IN RICHLAND CO., WIS.

One year ago to-day you came to visit me, and, oh how much different this year from last! I had over 3000 lbs. of honey in the house, and honey-boxes were full. This year I have not 100 lbs. in the

house, and but very little in the boxes. Clover was a total failure; basswood less than one week, and we do not know yet what the rest of the summer will bring. Friend Freeborn and wife and daughter made us a short visit last Saturday, and he thinks if we do not have to feed for winter we should be thankful. Of honey, 87½ lbs. is the least I ever got per colony; but this year it looks dreary for us at the Riverside—no honey, and our garden was almost destroyed three times by big storms. Our bees did not increase more than 10 or 12 in 100. I am superintendent of our Sunday-school, and Helena is secretary. We left the bees to take care of themselves Sunday forenoon, and perhaps lost one or two, yet I thank God it is as well with us as it is.

Orion, Wis., July 17, 1890. F. L. SNYDER.

NO HONEY AND NO SWARMS.

Having kept bees for threescore and ten years (but now out) I am beset by every bee-keeper I meet asking the reason why bees do not swarm, and also why they do not even occupy the sections, being filled with foundation. You probably will judge what my decision is when I say that there has been but little white clover to be seen this year, where once it was abundant, and the basswood has been in bloom for four days, and no more signs of swarming than the first of May, some having already killed off the drones. The winter here was mild, and the spring usually favorable. There are bee-keepers here that keep from 40 to 100 swarms, who have not had a single swarm, and I have heard of only two this season, and of them one went back. It is true that it is dry here now, but not so till recently. O. E. WOLCOTT.

Mount Morris, Mich., July 12, 1890.

PROSPECTS FROM THE ALFALFA FIELDS, AND SOMETHING ABOUT THE QUALITY OF THE HONEY.

The present prospects in this vicinity for a large yield of honey are rather poor. The alfalfa is pretty well dried up on account of a short water supply. The usual June and July storms have not yet afforded the relief hoped for. I send you to-day by mail a sample of extracted alfalfa honey, and I wish you to criticise it closely in GLEANINGS. We think it fine. It is said that honey is heavier here in this dry climate than in the East. We took 45 4¼x4¼x1¼ sections from one hive, some of them not fully capped, and they weighed 42 lbs. Honey has been coming in slowly for a few days past, although *Field and Farm* reports more honey up to date than ever before. J. T. CLAPP.

Broomfield, Colo., July 7.

Friend C., the sample of alfalfa honey you send is not only the finest in appearance of any honey I ever saw in my life, but it is also equal in flavor. We may say to our readers that it is almost if not quite as clear as water, and yet during a hot July day it will scarcely run. It is as clear as crystal, and exquisite in flavor. Very likely our friend has not a ton of such honey; but if he has, I should think it would be a small fortune if he could get it before the class of people who buy gilt-edged butter and things of that sort. And, by the way, we are using alfalfa honey on our table day after day. I never ate any other honey that suited so well, and for so great a length of time. At present the outlook seems to be that alfalfa honey is destined to lead the world.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

WOOD ASHES AS A FERTILIZER.

For some years I have been a good deal disappointed because wood ashes did not produce as good results on our soil as they seem to on most soils; and this season, after our heavy business in bee-hives and sections, a pile of ashes had accumulated that looked almost like a small mountain. All our ground had been treated to ashes already so liberally that I had little faith in putting on more. These ashes, of course, are not very strong, for they are made from pine and basswood; and, besides, the great bulk of them is from coal. Before putting them on the ground we sift them with a coal dealer's screen, to take out the large cinders. Well, in one of the agricultural papers I read of a man who spilled some beet seed on an ash-heap. He was making garden, and set his package of seeds down on the ashes. To his surprise, the few seeds produced magnificent beets—beautiful, smooth, and clean, compared with those that grow in the ground. To test the matter we put some ashes on some of our plant-beds until the surface was more than half ashes. Sure enough, we have onions, radishes, lettuce, and beets growing with wonderful vigor—some of them right in clean ashes, apparently. No insect meddles with them, and their rank growth, with deep-green foliage, is all that could be asked for. We have just planted several pounds of onion seeds left over, in a similar bed. These are, of course, at this season of the year, to produce sets, and not onions. Some of them are already up, and give promise of a wonderful growth. As the ashes and ground were both sifted, all we shall have to do in harvesting our sets will be to *sift them out* of the dirt.

POTATOES AS A MARKET-GARDEN CROP.

Friend Root:—Just four weeks ago I put Vick's Early Market potatoes on the wagon, and they sold at 50 cts. per peck, for ten days, the town taking about 1½ to 2 bushels every day. The Puritans were also sold for 50 cts. per peck about June 25th. Something is to pay with the potato crop in Nebraska, and if I had only planted my Puritans instead of throwing them into the manure-heap I should have quite a little fortune, as they have done grandly where the ordinary kinds have utterly failed. I could sell 50 bushels per day at $1.00 per bushel, on the cars, if I only had them, for Lincoln and other markets. I can always get more trade by selling potatoes on the wagon, though, of course, it makes a heavier load. Now, my object in writing is to find out whether there is any way to make the new ripe potatoes grow so that I can raise a supply for winter. Either you or some of your readers may possess this exceedingly valuable information. I have some drying very near but

under a hot roof; but I do not know that I can fool the potatoes into growing. Others in the West may like to see your enthusiasm solve the problem of making new potatoes grow. M. S. BENEDICT.

Crete, Neb., July 21.

Friend B., I know of no way to make new potatoes start up and grow like old ones that have been kept back, in a cool cellar, or buried in the ground. I think the latter way will be the best to manage it. I have made new Early Ohios grow by laying them in the sun until they became green, and useless for any purpose except planting. But this consumed valuable time, and the potatoes were much slower in starting than old ones. A neighbor of mine always saves some Early Ohios until the middle or latter part of July; then he plants them in good ground, and they come up very quickly and grow very fast. His object is to get potatoes that ripen just before freezing weather, that they may keep for seed over winter without sprouting. One season he had a crop of very fine large potatoes from Early Ohios sown during the last of July. At the prices at which we have been getting for potatoes for over six weeks, they will make a splendid market-garden crop. By the middle of June we could buy nice potatoes, brought from the South, for about a dollar a bushel; but when the old potatoes gave out they suddenly ran up from $1.50 to $1.60, and are in that neighborhood still. Now, this has occurred season after season, or something like it. It would certainly pay exceedingly well, at the latter prices, to start potatoes in the greenhouse, in boxes. Plant them exactly as you do cabbage-plants, putting a good double handful of rich fertilizer, from the greenhouse-bed, around every potato when you plant it. It is hardly possible that it should not prove a good investment for those who have room to spare under glass. The heat of the sun is all that is needed to start potatoes as soon as we want them. I would suggest that we have, for this purpose, an extra-early potato that is slow to sprout. At present I know of nothing that fills the bill as well as the Early Ohio.

PROPAGATING STRAWBERRIES WITHOUT HAVING RECOURSE TO THE RUNNERS.

I see in your foot-note to J. Johannsen, page 534, July 15, that you note that the other kinds of strawberries besides the Oregon are flowering in the same manner and under the same treatment. Well, very rich soil has shown the same result, but with berries that rotted badly under some observations that I have made. There is a variety here known as the Gov. Jewell, that, if very early runners are let have a chance, will mature about half a crop of fruit late in the season. You further note that you do not think that it will do to divide the old plants. I tried that as an experiment for four successive seasons, with about 20 varieties, and in no case had a failure. Take the plant up very carefully, clean off all the old leaf-stalks from the root, then separate every crown carefully; pack them nicely in sphagnum (swamp moss), and keep it just wet, not soaking, and keep them in a warm sheltered place. In four to eight days the small white roots start; then box them off in rich sandy soil, and finer plants to send out you can not find; but don't leave on too much top. H. L. JEFFREY.

Woodbury, Ct., July 20.

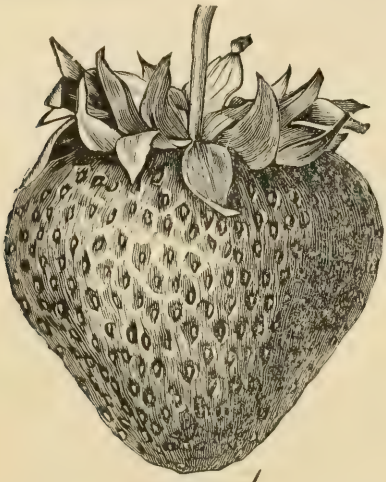
Thanks, friend J. Since you mention it, I do remember having started a strawberry-bed by taking the old plants. With excellent care and plenty of manure I made them throw out new roots as you say, and I got a very fair crop; but it is more labor and expense every way, and I think without as good results as the runners gave. In case of a variety, however, like the Oregon Everbearing, it may be advisable to increase that way.

STRAWBERRIES AND STRAWBERRY-PLANTS FOR FALL PLANTING.

In answer to many inquiries in regard to what plants to recommend, and for a report on the new varieties, including all the latest and most important before the world, I would request all the friends to send for Matthew Crawford's July Report. Address Matthew Crawford, Cuyahoga Falls, Ohio. Friend C. makes it his business to test with great fidelity and care all strawberries brought prominently before the world, and I have the utmost confidence in his skill, ability, and honesty in regard to faithful statements in the matter. The soil and locality may not give exactly the result that yours do. But he can furnish you plants adapted to any locality. My own experience coincides with his almost exactly in regard to the value of the new varieties. I would earnestly recommend, however, that you raise *your own* plants, as a general thing. Get a dozen, or even half a dozen, at this season of the year, of such varieties as you choose, then set to work and learn the trade of making plants. It is with strawberries as with bees. The safest way is to commence with a little, and learn as you go along. When you can care for half a dozen strawberry-plants properly, enlarge to 100, then to 1000, then to half an acre, and so on. But do not, I beg of you, commence with an acre first. It will surely end in loss and trouble. Friend Crawford has for sale about 25 different varieties. As I told you in our last issue, we have decided to offer for sale during the coming fall only the Jessie, Bubach, Haverland, and Gandy. The first and last have perfect blossoms; the other two must be fertilized.

To show you something what two of our varieties look like, we will give you some

pictures, taken from the strawberry-book, noticed elsewhere.



GANDY.

The cut hardly does justice to the Haverland, but the cut of the Gandy is very accurate. The large number of petioles are of a bright vivid green, contrasting beautifully with the crimson hue of the berry. Its petiole also allows air to circulate, and keeps the berries from bruising. They hang away up from the ground, just as the berry hangs in the cut, and I think we had quite a good many fully as large as the cut.

In regard to ordering perfect-blossom plants to fertilize the others, we extract from the new book as follows:

Mr. Kellogg, of Wisconsin, and others, prefer the Jessie to fertilize the Bubach; they say it makes a strong team. Perhaps so; but the Cumberland and Bubach blossom more nearly together, and, on our soil, I think now they will do the best together. The Jessie is considerably too early for the Bubach, but just exactly right for the Haverland. I should not wonder if they made us a strong team. The Downing fertilizes the Sterling well. We have three strong teams. I hardly know which is the strongest. That row of Gandy is put in where it may help to fertilize some of the late blossoms on the Bubachs and Sterlings, which are medium late in blooming.

There are three other strawberries we are going to plant considerably, but we shall probably not be able to offer them for sale this season. The first is Michel's early, which is the same thing as the Osceola. At present this seems to be the best extra-early strawberry. The next is the Louise. These berries are very large, but of queer oblong shape, pointed at both ends, more like a gimlet-handle than any thing else I can think of. A basket of them awakens surprise at the oddity. The plant is a splendid grower, fruits well, and is almost as sweet as the Jessie. Then there is the tomato-shaped plant I described in my visit to Mr. Crawford. He says, in his July Report:

Saunders.—Originated and introduced by Mr. John Little, of Granton, Ontario, one of the best-posted strawberry-growers to be found. This was the most productive berry on my place this season, and was a great attraction to visitors. An experienced grower from an adjoining county conceded that it was more productive than the Crescent. Another grower from the same county, upon seeing it exclaimed, "Well! well!! well!!! well!!!!" The plant is faultless, and the blossom perfect. It is very showy in the basket, being large and of an exceedingly brilliant, deep-red color. The first berry on the stem is of immense size, and quite apt to be misshapen, but the bulk of the crop is of conical form, flattened, with a suture or depression on one or both sides, extending from the center to the apex. The flesh is red, juicy, and of a sprightly, agreeable flavor. This variety, in both plant and fruit, is one of decided character, and sure to make its mark.

You remember, in the spring I spoke about making garden on ground with paths so close that one never need step on the beds in cultivating and gathering the crops. Now, there is certain stuff that I feel sure it would pay to raise in just that way. First, all kinds of plants, including strawberry-plants for sale. My plan of making these beds would be to use some 6-inch fence boards, 16, 18, or 20 feet long, just as you can get them. Make an oblong box of this, something like the top box of a lumber-wagon. Fit your ground thoroughly with a team as for any crop—that is, if your space is large enough. Then set the box on, driving stakes to keep your boards from spreading, and fill it up with compost. The paths need not be more than a foot wide. In fact, where ground is very valuable the workman can stand in a 10-inch path. Shovel the dirt out of these paths, throw it in the middle, fill up with manure, sand, and muck. If you can not get all three, use what you can get. But make your ground so it is as rich as the beds in a greenhouse, and have it so composted that it can not make a bake or crust, even if you water it every day. Now, this is what you want for the strawberry-plants. If you can not afford more than a single bed, make that one bed in this way, and put single plants, say 4 feet apart, right through the middle of the bed. With the transplanting-tubes you can take up a plant having a dozen runners. Spread the runners out like the spokes of a wheel; put a little stone—or, still better, a lump of manure—on each little plant to hold it in place; then water the ground so it never gets dry,* and just see how those strawberries will run and make plants during these July days. Why, you can do a big business in selling choice plants to your neighbors; and if your ground is spaded up and enriched, say *18 inches deep* in these plant-beds, oh my! what roots your strawberries will have! I have not tried fruiting very much in these plant-beds, but I have visions of having fruiting plants all around the outside edge of the bed, with great berries the size of hens' eggs hanging over the side of these 6-inch boards. I saw that in just one case this spring, and I expect something wonderful will come of it before we get through. Just now, however, the main business is to raise the plants and to get good stocky ones ready for fruit next season. You see you can be raising plants in these plant-beds whether it rains or not; and when your crops are off, and there is rain enough to work your ground nicely, you can put your plants out in the fields when you get ready.

*A big tank or reservoir, kept full by a *windmill*, is just *the* thing during this hot, dry, dusty weather.

MYSELF AND MY NEIGHBORS.

In lowliness of mind let each esteem other better than themselves.—PHIL. 2:3.

THE world says, "Look out for No. 1." The Christian religion says, "Not so." But it even goes so far as to say, in the language of our text, that we should "esteem other *better* than ourselves." We have all heard this enjoined; and during these hot summer days, when we sit near the pulpit and listen to the good pastor who exhorts us against selfishness, we assent in a sleepy sort of general way. If somebody should take us by the shoulder and shake us and ask us what we think of such a doctrine we would likely respond, "Oh, yes! that is all right; that is what we ought to do. In fact, that is what I do or try to do as well as I can." And I am afraid we let it drop right there, without any particular idea of applying it in a practical way to the business of every-day life. And yet this world is suffering and going to ruin for the want of a practical application of the religion that most of us profess. Let us see how our text fits to actual business.

It is quite customary for newspapers and periodicals to give testimonials from their advertisers. In fact, among our "Kind Words" we have put in quite a few headed something like this: "GLEANINGS as an advertising medium." I believe, however, especially of late, they have all been flattering reports. For some little time I have had a sort of uneasy feeling that it was not fair to encourage people to send us advertisements without giving the discouraging reports as well; so I think we will have one of them right here:

A. I. Root:—Find inclosed $1.60 to balance my account. I failed to get a single answer to my advertisement. WALTER J. HUSSEY.
Mt. Pleasant, O., July 24, 1890.

Now, that is a pretty bad showing for the value of GLEANINGS as an advertising medium. May be, however, the nature of the advertisement may have had something to do with it. Let us look it up and see. It came out in the July 1 number, so it had been before the people almost a month when our friend reported. Here is the advertisement:

PHOTOGRAPHY AND BEES.

One hand camera, 4x5 pictures, and one Scovill, 5x8, with tripod, etc., $10 each. Also a few stands of Italian bees, which have averaged 100 lbs. of honey per stand, in Root's Simplicity hives, with wired combs, $4.00 each. Send for particulars.
W. J. HUSSEY, Mt. Pleasant, O.

I do not know much about the average price of instruments for photography, but I should think the above was reasonable. The price of Italian bees is certainly very low. They must be good Italians or they would not have given 100 lbs. of honey each. But we must confess the fact that not one person among our 10,000 readers took any notice whatever of the exceedingly low price of bees. Probably the greatest reason for this is, that few people wish to buy bees at all after the season for honey is over. It is ike goods that must be kept over for another season. Some beginner who has the bee-fever bad might possibly invest in July; but there do not seem to be very many such now among the readers of GLEANINGS.

One other obstacle in the way of purchasing bees is, that it is a very expensive matter to ship them any distance, and a good many have been discouraged from buying bees in July, because of having combs broken down, etc., therefore we have gathered two or three good morals from friend H.'s report. But how about the $1.60 that has been paid to us that has never given our customer *any* profit whatever? Very likely friend H. is perfectly satisfied to drop the matter and call it all right; but *I* am not. When my religion is bright and clear I never feel right in taking money for something that has never done any good whatever. Friend H., the $1.60 is placed to your credit until further orders; and if any other GLEANINGS advertisers have sent us like advertisements that have brought them *not a single application* there will be no charge for said advertisement. If, however, we should tell you when the advertisement is sent in that we fear it will not pay you, and then you should say, "Let it go in and I will take the chances," I should feel all right—that is, tolerably right, if you will excuse the expression, even if it gives you no profit. What application has all this to our text? Why, this much: We should feel just as sorry for *somebody else* who invested money without getting any returns as if we had done it ourselves. Most of us know *exactly* how one feels after such an experience. Nay, further: that faithful and devoted follower of Christ Jesus, our good friend Paul, says we should esteem other *better* than ourselves. Now, I presume a lot of good friends of mine will protest at this way of doing business. They will say, "We can not live by it." Oh how glad I am that I can tell you you are making a mistake and a blunder! No man ever failed in business because he was too honest or too self-sacrificing, or had *too much* real love for the interests of his fellow-men. In fact, it is quite the contrary. Nothing in this world can advertise a business or build it up like getting the spirit of our text into your hearts. Some one may smilingly suggest that perhaps this is the very "dodge" that I am up to now; that it is another scheme to advertise *A. I. Root;* but I do not believe that any of you think so. Some of you may talk that way when you are provoked with me; but you know I have demonstrated in these years that are past that a business can be built up with wonderful rapidity by putting in practice just this sort of teaching. There is nothing in this world that so provokes and disgusts a customer as to see the man or firm he is dealing with showing disregard for his interests. The spirit of our text is a comparatively unexplored region. It is so rare to see a man or a business house put it in practice—that is, looking out for their *customers'* interests better than they look out for their own—that when anybody does it it creates a sensation straightway; and it makes a bigger advertisement than would a sign over the

top of your building, with letters on it ten feet long.

It is not only business houses and managers, shops and factories, that fail to avail themselves of these wonderful gospel truths, or fail to explore this great broad unexplored region, but it is common laboring people —those who work for wages. The quality embodied in our text is so rare and so valuable that he who has got hold of the key, and who has discovered the secret, shoots up in his attainments, ability, and value so as to call forth remark. Now, do not understand me to say that such qualities do not sometimes fail, for a time at least, of appreciation. The one who commences to serve Christ by loving his fellow-man better than himself will have crosses to bear. Like Moody in his first boyish attempts to serve the Lord, he may find himself put down to crackers and water for his rations, and a hard bench to sleep on at night. But the reward is sure and certain, if he shows a reasonable and constant devotion to the interests of his fellow-men and to Christ Jesus.

You may ask why Christians do not get greater wages for their services, compared with worldly people, than they do at present, take them right through. My reply is, that their Christianity does not strike deep enough, and is not put sufficiently and directly into practice. Let me now give you another practical application of this same spirit. I am afraid it may give pain to some good friends of mine; but even if it does I am sure it will prove a lasting help to them in the end.

June 12 we received an order from Mrs. D. B. Crumbaugh, Augusta, Ky., for a lot of hives, frames, etc. The goods were shipped June 24, twelve days after the order was received, which was not so very bad for an order in June. The goods, however, did not get along in due time, so she wrote us, complaining, telling how great was their need. A tracer was sent as usual, but this did no good, apparently. Another complaint was sent and a second tracer. The card calling forth the second tracer we give below:

Please send a tracer from your depot after the things. I gave the bill of lading to our agent, and he said, send to you. *I see your letter is to Breckenridge Co., instead of Bracken, which mistake you may find is the cause.* I know if I had thought it would have been so long and so much trouble to get you to fill an order for me I would not have bothered you to do so. MRS. D. B. CRUMBAUGH.

Augusta, Ky., July 3, 1890.

You will notice the italics in the above. The writer did not emphasize this portion, but our clerk who opens the mails always reads every thing and underlines all matter of special importance. This was underlined to indicate to the book-keepers to look up this matter and see whether the goods were properly addressed. I want to put in a plea in behalf of the book-keepers. They were so overcrowded at this date that even important matters were crowded over for the next day, and a great mass of communications did not receive the careful attention they perhaps would at any other season of the year; therefore the matter in italics was overlooked entirely. As a dozen or more tracers were sent every day for goods, I presume they had got into a mechanical sort of way, without giving much thought to it, only that more goods were to be traced or hunted up. The tracers were sent in a sort of routine way, and the kind appeal underlined on the card was overlooked entirely, and the postal card distributed. Of course, an answer was made, as we always make an answer, but it was only a printed one. We have been obliged to use printed answers quite largely during this past season, simply because they were better than no answers at all, and because we could not find anybody who could answer intelligently —that is, no one who could do it until he had some acquaintance with the business, and experienced hands were already overworked. Finally there came a letter that fell into *my* hands. Here is the letter, with postscript:

Mr. Root:—Again I write to say nothing has been heard of the supplies. I ordered the goods marked forwarded promptly; and if marked correctly, and in that way, it seems to me that the railroad officials ought to be made responsible to a certain degree for my loss. Here have been our hives minus frames, all during the honey season. As I wrote you before, the man working with the bees said our loss in honey was from 300 to 500 lbs.; besides, if goods ever come I am bound for them all, as, not coming in time, he has no use for them another season. I do not know what Mr. Crumbaugh would order done with them if ever found—returned to you or sent on to me. I shall have to leave that with you. Our honey season is over here for this year, and he does not think he will be here again next season. The 30 days from shipment expires to-morrow, but I usually, in my own business, receive goods before sending remittance. This, to me, has been the most worrying order and business I have ever attended to in 19 years' experience. Mr. C. will, I think, be home during August, and will then write to you. MRS. D. B. CRUMBAUGH.

Augusta, Ky., July 23.

P. S.—When you find them I think you will find them directed to Breckenridge Co., to which I called your attention before, but there is no town of Augusta in that county.

After reading the postscript I penciled at the bottom of it: "How is this?" Then was unraveled the whole shameful story. The postal card with the underlined part was brought to light, and the book-keepers were obliged to admit that no attention was paid to the suggestion that the goods had not been *directed right.* Going back to the original order we find that our friend wrote plainly, Bracken Co. The pen hadn't marked quite plainly, however, so it might have been considered Brecken instead of Bracken. Well, the one who draws off the orders and simplifies them for the packers, making sure that the address is *exactly correct*, took it into his head that this was an abbreviation of Breckenridge, and so added "ridge" to Brecken, sending the goods to a county that had no Augusta in it at all. For several years, at the bottom of page 3 of our price list is the following in large black type: "In one case we had to pay $131 for sup-

plying a county that our customer did not give." It is kept constantly in our price list to impress upon our friends the necessity of giving the *county* as well as town. Our clerks, all of them, have had ample experience in regard to the matter of counties. The *county* is often of more importance than any thing else. If you have the county, the goods will generally find the town. Please notice that the responsibility falls upon a great many people in this little transaction; but it comes first upon myself. As there was just time to get a few lines mailed before train time, by my direction the book-keeper told our customer of the shameful blunders that had been made, and wound up by saying we had ordered the goods returned to us; and, more than that, if she would tell us what our blundering had actually cost her we would try to pay it.

Now for a practical application of our text. Being tired and overworked, is, I know, quite an excuse for doing things in a half-hearted, mechanical way. It is, to a reasonable extent, an excuse for a want of sympathy for those whose comfort and happiness depend upon our fidelity; but notwithstanding, if we esteemed others *better than ourselves*, and had that real feeling of sympathy in our hearts, and love for every human being, even though miles away, we should be more careful than we usually are about doing them wrong or injury, even through inadvertance. If somebody puts a great heavy boot on your corns, you can accept an apology with a pretty fair grace, especially if he says he did not *mean* to do it. There is, however, a feeling in almost every one's heart, that the man who has great heavy boots, and a big heavy body to bear down on them, should look carefully where he steps; and, dear friends, it behooves a Christian not only to look very carefully where he *steps*, but to be careful what he *does*, especially if his work be of such a nature that it may work injury that can not well be repaired. The clerk who added "ridge" to the name of the county, has a postal guide right on his table, expressly to set him right when there is any doubt in regard to an address. Had he looked in this he would have found a Breckenridge Co. in Kentucky; but had he looked further he would have found that Augusta is in *Bracken* Co., and this would have made him safe. We have had ample experience of the danger of "tinkering" with addresses in any way. If we direct goods exactly as we are ordered to, we can easily prove ourselves exempt from blame; but if we add to, or take from, in the least respect, we are doing a dangerous business.

Now, so far my story looks a good deal as if I were complaining that but little Christian sympathy is found, as a rule, among business people. It might look, too, as if I meant to say that *A. I. Root* has *lots* of Christian sympathy, and that is why he is doing so big a business. Now, please do not get that idea. A good many of you know that it is not so. A. I. Root once in a great while takes a *freak* of showing forth a spirit somewhat akin to that of the glorious Master. But this light he has been able to shed to you through these pages is all a *borrowed* light. All credit and *honor* and GLORY belong to Him who came to a sinful world because he loved sinners. I do not know but I scolded most about that postal card with that important part underlined. When I went to the book-keeper with it she admitted that it was a grievous thing to neglect and ignore such a plain suggestion as to the cause of the trouble; but she shouldered the whole blame at once. In fact, as I understood it, she took it all on herself. A few minutes more, however, another lady —a devoted Christian, who sends the tracers —came to me saying, "Mr. Root, I send all the tracers, and it surely was my fault that that card was distributed without inquiring into the matter underlined. Tell me what it costs to make this good, and I will pay it." Then I felt happy. We had reached bottom, and were beginning to stand on the rock Christ Jesus, according to the text. I feared she did not realize, however, how great was the damage, and, said I, "Why, my friend, it may cost a *hundred dollars* to make good this woman's loss." I watched her face to see what the effect would be. I could see the inward struggle, but she bore it bravely, and replied, "Never mind, I will pay it, or my share of it, whatever is right." This, my friends, is what I call shouldering the cross in business matters. As she is a comparatively new hand, her wages are not very large; and one hundred dollars, as a consequence of passing a postal card along before it was fully answered, would prove a pretty *heavy* cross. The book-keeper, who has had many years of experience, and has a pretty fair salary, protested, however, and insisted that *she* was *probably* the one who passed the card along for distribution. I do not know whether it occurred to them that their old friend A. I. Root would never stand back and see two women lift on a burden like this without lending a strong hand. My impression is, that they did not think any thing about it; only they felt for their poor sister away off in Kentucky, who tells most plaintively in her letter of her troubles that came about through our carelessness.

The leader of our young people's meeting not many Sundays ago made the remark that speaking well of people is contagious. I spoke right out ("in meeting") and remarked, "So is fault-finding," and the whole meeting smiled. Now, my friends, this spirit of Christian *sympathy* is contagious. Why, it catches and goes like wild-fire; and if that sister away down in Kentucky does not get a little of the contagion too, and come forward and clasp hands with her sisters here, even though they have done her a damage, I shall be much mistaken. After she has seen this statement of the matter she will show a Christian spirit in making out her bill of damages, whether she be a professing Christian or not.*

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* Since the above was written, the clerk who added the "ridge" to the name of the county has sent me a little note, written on his type-writer, expressing great sorrow for his error, and proposing to work for less wages until he has made up for that and some other mistakes. So you see there are

Now, my friends, a word in regard to *bearing* these crosses, or, letting them slip on to the shoulders of *somebody else*. It certainly builds up business, and it builds up daily wages and salaries; but, best of all, it helps us to grow and improve in accuracy, in skill, and fidelity. A man who goes to work for me and proposes to stand the consequences of his blunders—that is, where they are *clearly* and *unmistakably* his own, makes progress "straightway," as our good friend Mark puts it; but the one who says he "can not afford it," or who evades the subject as quick as he can, has trouble and misfortune all his days; and, worse still, he does not seem to get over his misfortune of being inaccurate. Perhaps it is true, there are those who are unfortunately unfitted for any position where mistakes are dangerous. I have sometimes had pleasant talks with people who seemed by *nature* unfitted for exceeding accuracy. It depends a good deal, of course, on the faculty of close application to the matter in hand. I feel sure of this, however, that a spirit devoted to the great God above, who gave us our talents and abilities, will help very, very much in all these matters, and then imposing a punishment upon ourselves as a consequence will generally bring us to a "realizing sense" of our sinfulness. Besides my yearly subscription to our church, I always make it a point to put a dime into the contribution-box as it passes. Well, I have been greatly annoyed by forgetting to provide myself with dimes. I finally told Mrs. Root that I was going to cure myself by imposing a fine of half a dollar or a dollar for my forgetfulness. Soon after, I put a dollar into the contribution-box for some purpose where money was wanted for current expenses. The usher, however, brought it back to me and said it was a great deal more than my share, giving me some change. I told him it was all right—that it was my way of bringing A. I. Root to time. Well, it did the business. I attend a great many religious meetings, as a matter of course; and of late years I very seldom find myself out of the dimes that I propose to give whenever a collection is taken up. When it costs us *money* to forget, we get *over* forgetting.

Business has slacked up now, so that our rooms are almost deserted. A great many of the hands have gone away to labor in other places, and a great many others are out at work on the new building. My greenhouse and garden is a sad wreck; but in its place, massive stone walls are slowly rising. Now in regard to the friends who are helping to move the stone, brick, and mortar. A great *many* of them are unaccustomed to such work. *Some* of them have had experience. But I tell you, my friends, that even experience counts but little in comparison with a hearty good will and *interest* in what is going on. We have had men there at work who would stand and wait to be told. They would not pick up a crowbar—in fact, they would not be looking at the work until the boss told them just what to do. Sometimes he would have to take hold of a man, and point to the crowbar, and then point to the stone. *Others* would be full of interest and sympathy. If they did not know about the tools and stone, they would ask questions. If a block of wood were wanted for a bait, before the mason could call for it they would have it right in place, and in a few hours they would get the run so that, without previous experience, they would "catch on" and go ahead without any telling at all, almost. What are these men worth who ask questions, use their eyes, and all the ability they have, to see what is going to be done, and to be on hand with the right thing at the right moment? Why, one such man is worth two or three of the former. Now, it is all in a line with having sympathy with all that is going on—having an anxiety and love, not only for your employer, but for your fellow-workers, and for the great business and machinery of human life at large. We have several German helpers among us, and some of these can not talk English very well. But I tell you, my friends, their kindly sympathy, their bright, energetic willingness, good nature, and their hearty co-operation, is worth ever so much more than ability in using right language without these qualities I have been speaking of. Physical strength is a good thing; but even *that* is hardly to be compared with a right spirit within. *Selfishness* and *greed* are the great obstacles. O dear friends, shall we not strive *still harder* to follow the injunction of this beautiful little text—"Let each esteem other *better* than themselves"?

four, counting myself, to bear the burden of damages. He will not have to work for lower wages, however, I am pretty sure: neither will anybody who goes to work righting mistakes in this way.

EDITORIAL.

Bear ye one another's burdens, and so fulfil the law of Christ. —Gal. 6:2.

Don't fail to read the articles elsewhere from commission men in regard to disposing of your honey crop.

SOMETHING IN REGARD TO RAISING BASSWOODS FROM THE SEED.

The following is taken from a report found in the *Country Gentleman*, of a convention in regard to forest-trees. We hardly need add that Mr. Meehan is excellent authority:

The basswood, or linden, is one of the best street-trees that we have, as it always makes a fine, continuous growth; but an objection may be in the coloring and dropping of the leaves so early.

Mr. Manning believed that the native linden is much superior to the European in respect to the early leaf-fall, and also in not being so liable to injury from the borer. Mr. Meehan's method of raising basswoods is to plant the seed in the fall, two inches deep, and keep the soil covered summer and winter, as darkness is absolutely essential to germination; thus treated, the seed will grow almost as readily as peas.

IRRIGATION IN THE EASTERN STATES.

Just now we are in the midst of a pretty severe drouth. In purchasing some beautiful blackberries of a neighbor just now, he remarked that he was going home to draw water in barrels to water half an acre to keep them from drying up. When I

asked him whether it would pay, he said he had tried it for years, and it paid big. With plenty of water he will have 50 bushels that will bring a large price on account of the scarcity of fruit and berries. Without water, a few days more will make them a failure. As I write, our 1600-barrel tank is almost full, and the mill still pumping. A builder came in and asked what I would take for 16 barrels of water. I told him I had never been in the business of selling water, and that he could have it and welcome. Moral.—Don't you think a big tank, with a nice windmill, a pretty good thing to have in a dry time?

AN APOLOGY.

SOME time in April, Messrs. A. F. Stauffer & Co., of Sterling, Ill., sent us notice that they were burned out. Instead of notifying their customers of their misfortune by an editorial, as common courtesy would dictate, by some means or other their notice was set up as an advertisement, and they were charged for it. The above confession is a little humiliating, I admit, as it implies that none of the heads of our establishment really knew what had been in our advertising columns. By way of excuse, we urge the great amount of business during the past season; but I know the excuse is a poor one. Now, the whole point of this apology is, that our friends who have trusted orders with A. F. Stauffer & Co. should exercise patience and charity, and not be too severe on them. There is another moral: Although their loss was something like $3000, by neglect their insurance had been allowed to run out. Please look after your insurance, friends, especially if you are a supply-dealer, even if you are so busy that you can not attend to any thing else.

THIS SEASON VERY DISCOURAGING; A HINT TO HONEY-PRODUCERS.

A FEW days ago we sent out a set of questions to our statistical reporters throughout the United States. As only about half of the statistical cards have been returned, we can give only a partial report; but that bee-keepers may know a little in advance what to expect, and so hold up on the price on what little honey they may have gotten, we thought best to say *now* that the cards so far received show that this year is an exceptionally poor season for honey—perhaps the worst in many years. A good many of the veterans will not get more than four or five pounds surplus per colony. With very few exceptions the report is, all along the line, "Season very poor, and prospects also poor." Certain parts of Kentucky, Virginia, Wisconsin, and Minnesota, have had an exceptionally good season. If you have secured any honey at all, don't be in haste to sell it off too cheap. The crop in California and Colorado will probably be good. We have hardly had time to get reports from these sections. We learn, also, that fruit is going to be rather scarce this year. This will help materially to stimulate the demand for what honey there is, and also to stiffen prices a little. It is no use to say bees do not pay. Farmers are complaining that they can not get a living out of the soil. Fruit-men also will probably complain about the past season. The fact is, all these rural pursuits have their setbacks. The best way is to look cheerful, be cheerful, and thank God for what we have.

Later.—Since writing the above, the prospects are brightening. Reports are coming in of large crops of honey having been received in various localities. Clover seems to be "hanging on" longer than was expected.

A BICYCLE TRIP AMONG THE YORK STATE BEE-KEEPERS.

The writer, Ernest, expects to make a trip through York State by the aid of a bicycle and the locomotive. I shall go by rail long distances, and for short distances among the bee-keepers I shall travel on the wheel, the weather permitting. I have recently purchased a Victor high-grade Safety bicycle. I shall be equipped, also, with a Kodak camera. Many of the best bee-keepers are off from the railroad routes, and are located anywhere from eight to twenty miles apart. My object in making this trip is to get information upon a great many points connected with our industry, by visiting bee-keepers of large and varied experience, and of varied opinions as well. I propose to go to Jamestown first, to visit the W. T. Falconer Mfg. Co. If the roads permit I will then mount the wheel, pass along the shores of beautiful Lake Chautauqua, strike the railroad near the lake, and pass on to Buffalo by rail. Thence I will take the cars to Auburn, and mount the wheel and proceed to Skaneateles, and then ride along the shores of the lake of that name, and finally stop a few hours at the home of that veteran bee-keeper and writer, G. M. Doolittle. Thence I will pass on to Starkville, the home of P. H. Elwood, one of the most extensive bee-keepers in the country. I hope to visit, in this vicinity, Mr. Julius Hoffman, the inventor of the Hoffman frame; then Van Deusen & Sons, of flat-bottom-foundation fame, and possibly take a short run down to some of the apiaries of Capt. Hetherington. The captain is absent for the present, I understand. Thence I expect to join my wife at Durham, on the Catskill Mountains. After a few days' outing I hope to run up to A. E. Manum's, to visit bee-keepers in that vicinity, and finally strike out for Lake George, where a camping party of some of the best bee-keepers of the land will be present. This party will consist of Rambler, F. A. Lockhart, J. H. Larrabee, and a good many other bee-keeping friends, whose names are not announced. In regard to this camping party, Rambler, in a letter received recently, writes:

Friend E. R. Root:—Bros. Larrabee and Lockhart came down on the Rambler this morning, and today the talk is nearly all on a camping party of bee-keepers on Lake George. Mr. Lockhart has secured a cottage on Plumb Bay, three miles from Caldwell, where bee-keepers will assemble from the 19th to the 22d of August, where fishing and a good time generally will be enjoyed. While we can not give a free invitation to *all* that may come, we should be pleased to see any who wish to join us, and guarantee that the expenses will not be out of keeping with a short honey season. If any bee-keepers wish to be accompanied by their wives, there will be no objections. Any further information can be obtained by addressing Mr. F. A. Lockhart, Pattens Mills, N. Y.

About 12 bee-keepers have signified their desire to form such a party, but we hope to get together at least 25. We are having such an off season that we can attend just as well as not. RAMBLER,
Supported by Lockhart and Larrabee.

I am pleased to make mention of this trip, so that, if there are any bee-keepers along the route whom I might miss, and who would like to have a short visit, if they will let me know immediately perhaps I can make it convenient to call upon them. I ought not to go far from the Central.

P. S.—I expect to send in notes on the way.

SPECIAL NOTICES.

CHINESE ROSE WINTER RADISH.

We have given this a place before every thing else for radishes in the fall. Not only are they better in quality, but they seem to stand the hot weather better. Ounce, 5 cts.; per lb., 60 cts. Sow them any time this month or next.

CELERY-PLANTS.

We have still on hand a very fine stock of celery-plants for late planting. We have kept them growing nicely by copious watering from the windmill tank. Price 5 cts. for 10; 100, 40 cts.; 1000, $3.00. If wanted by mail, add 5 cts. for postage for 10, or 25 cts. per 100.

OUR NEW STRAWBERRY-BOOK, WRITTEN BY T. B. TERRY.

The price of this book will be 35 cts.; by mail, 40. It will be ready to mail in three or four weeks, probably. If you get in a hurry you can have the advance sheets, which are now printed up to page 64, and when the whole book is out we will send you the work complete.

PRICES OF STRAWBERRY-PLANTS.

The price of the Jessie and Bubach will be 10 cts. for 10; 75 cts. per 100; $6.00 per 1000. The prices of the Gandy and Haverland, 20 cts. for 10; $1.50 per 100; per 1000, $10.00. If wanted by mail, add 5 cts. for 10, or 25 cts. per 100 for postage. These are the only plants we have for sale at present. If you want other varieties, we would refer you to Matthew Crawford, Cuyahoga Falls, Ohio. The Jersey Queen and Sharpless are discontinued, putting the Jessie in place of the Sharpless, and the Gandy in place of the Jersey Queen.

HONEY WANTED.

We are having calls daily for price of honey, and some orders are sent in without knowing the price. As yet we have not received a pound of new comb honey with which to fill orders. There are more requests for comb than extracted. If any of our readers not too far from here have some nice comb honey in 1-lb. sections well built out to the wood on all sides, so it will stand shipping, please write us, stating the quantity and the price you expect; and if we can not make you an offer, may be we can direct you to a customer.

TURNIP SEED.

From our past experience with the Purple-top Globe, we are inclined to recommend it in place of all others for sowing in August. We have a large stock of nice seed, just harvested, the seed coming from one of our bee-keeping brethren. Price 5 cts. per oz.; 40 cts. per lb.; 5 lbs. or over, 35 cts. per lb. If wanted by mail, add 9 cts per lb. for postage and packing. Southern Prize turnip, which stands over winter, and is specially adapted for furnishing blossoms for the bees in spring, same price as the above. This is not as good a turnip for the table as the Purple-top Globe; but it may be sown at almost any time, either in August or September.

PRICE OF UNTESTED QUEENS REDUCED.

We have quite a lot of tested queens, from a year to two years old. We desire to remove these, and put in their places young queens. All of them produce nice three-banded bees—good queens to breed from. We will sell them at the same price, until they are disposed of, as the untested. This month we make a reduction of 25 per cent over July prices. Untested queens, each, 75c; old tested, 75c; young tested, $1.13; select tested, $2.25. If you want an extra yellow queen, the price will be a fourth more. We can not guarantee them to be any better honey-gatherers than the average queens, and perhaps not as good. Honey queens will also be a fourth more. These queens, as also their bees, are leather colored. The progeny of our two honey queens last year gathered and stored honey while the other bees were robbing and gathering nothing. Their daughters may not produce bees any more active; but the *chances* are that they will be better workers than the average bees.

OUR FAIR OFFERS.

We copy the following editorial from GLEANINGS of last year, indicating what may be done in the way of education at our State and local fairs:

MAKE ALL YOU CAN OF THE FAIRS.

Our experience last fall at the Ohio Centennial at Columbus has taught us that much can be done at fairs toward educating the people in our favorite pursuit, and correcting many of the false ideas current among them. Much can be done toward correcting the public mind on the subject of manufactured (?) honey by distributing our $1000 reward cards, and by having a comb-foundation mill, with samples of wax sheets before and after they have passed through the mill. The worst falsehoods are those which contain a grain of truth, and there is no doubt but that the comb-foundation industry furnishes a foundation and gives strength to the story of manufactured comb honey. In the minds of the great mass of the people, except those directly interested in the use of comb foundation, this product has made a vague impression, and it is not strange, knowing human nature as we do, that this foundation is exaggerated into fully completed comb, and filled with honey or a substitute. One of the best ways to correct the false notions, and shear off the great overgrowth of imagination from the facts is to show to the masses at the fairs how comb foundation is made, explaining the impossibility of accomplishing the manufacture of complete comb honey. Have a piece of natural comb and a piece of the thinnest comb foundation and a magnifying-glass, so that each may be examined. Hand to the skeptical and unbelieving one of our reward cards, offering $1000 for proof to the contrary of your statements. In all your efforts, be patient and Christlike, remembering that these neighbors who have been misinformed have not had your opportunities for knowing the facts. If this policy is persistently carried out there can not fail to come increased confidence in bee-keepers as a class and their product, and increased consumption of honey.

INDUCEMENTS FOR FAIR EXHIBITS.

In view of the above it is to your interest as bee-keepers to make as fine an exhibit as possible. Your own product should, of course, figure largely in the exhibit. Our show-case will help display your comb honey, and you should have the extracted honey in a variety of attractive packages, mostly glass, tastily labeled.

To help fill out the exhibit and add variety, you need the various implements used in the production of honey, such as a sample hive, frames, sections, honey-extractor, knife, smoker, and what not. To encourage this part of the exhibit, we will, as in years past, allow a discount of 25 per cent from goods of our manufacture which are suitable for such exhibits. These are the conditions on which we grant this discount:

1. That you state with the order at what fair or fairs they are to be entered.
2. That you receive only samples (one of a kind). Five hundred sections, 1 lb. each grade fdn., 50 frames flat, will be counted as units.
3. That you show up the goods to good advantage, and judiciously distribute the advertising matter and samples of GLEANINGS we send along.

If you secure any premiums on the goods, they are yours. If you secure any subscribers to GLEANINGS we will allow you a rebate of 25 cts. on each name so secured. You must, however, charge the full price of $1.00, and remit us 75 cts. of it. If you sell any A B C books we will mail them to your order at $1.00 each, you charging $1.25 in each case.

OFFER TO THOSE WHO DON'T BUY GOODS.

Some fairs may come off so soon that you won't have time to get the goods you would like, or you may have them already, and are going to exhibit at one or more fairs. To such we offer free one copy of cloth A B C or one year's subscription to GLEANINGS, if you will display posters, and judiciously distribute advertising matter which we will send you on request.

This outfit consists of 100 return business cards, 25 $1000 reward cards, 10 price lists, 10 copies of GLEANINGS, 10 GLEANINGS posters, and a letter directing you how to use them. We propose to number each lot of cards sent out, and keep a record, so that we shall know from the quantity of cards of each number that are sent back somewhat how well you have done your work.

BEST ON EARTH

ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...$2.00
Conqueror "	3 "	"	... 1.75
Large "	2½ "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow ")	2 "	"	... 1 00
Little Wonder,	1¾ "	"	... 65
Uncapping Knife.....		.....	.. 1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

HEADQUARTERS IN THE SOUTH.

FACTORY OF BEE-HIVES, ETC.

From now on I will sell my 4-frame nuclei, with Italian queen, at $3.75. In lots of 5, at $3.50 each. Untested queens, at $9.00 per dozen in June; $8.00 per dozen in July. Satisfaction and safe arrival guaranteed. Twelfth annual catalogue.

9tfdb **P. L. VIALLON, Bayou Goula, La.**

Please mention this paper.

BEES

SEND for a free sample copy of the BEE JOURNAL—16-page Weekly at $1 a year—the oldest, largest, and cheapest Weekly bee-paper. Address

16tfdb **BEE JOURNAL, Chicago, Ill.**

Please mention GLEANINGS. 1tfdb

GOLDEN ITALIANS.

Warranted to produce 3-banded workers, and safe arrival guaranteed. I can fill all orders for less than one dozen by return mail if desired, price 75c each. Look at my ad. in June Nos. of GLEANINGS. Address JAMES WOOD, North Prescott, Mass. 11tfdb

☞In responding to this advertisement mention GLEANINGS.

100 PURE ITALIAN QUEENS

Now Ready, and for the next 15 days will be sold as follows: Tested queens, $1 each; untested, 70c each; 3 for $1.75; 5 or more, 50c each. All queens bred from select imported and home bred queens. Safe arrival guaranteed.

D. G. EDMISTON,
Adrian, Lenawee Co., Mich.

☞In responding to this advertisement mention GLEANINGS.

A REVOLUTION

In Strawberry growing. The **Enhance** is the most reliable, most productive, largest shipping and all-purpose berry ever before offered. Send for description and price. HENRY YOUNG, Ada, Ohio. 15-16d

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to

4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.

5tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.

☞In responding to this advertisement mention GLEANINGS.

FOLDING PAPER BOXES.

CRAWFORD'S SECTION CARTONS ARE THE BEST.

Send for free sample and price list, and find out the reason. A certain fact has come to our knowledge that is worth dollars to *you*. Send for it.

A. O. CRAWFORD, S. Weymouth, Mass.

12tfdb Please mention this paper.

QUEENS and SUPPLIES.

Untested Italian queens, each.....$1.00
Tested..... 2.00

Send for price list of bees and supplies.

Address **F. W. LAMM,**
(Box 106.) **Somerville, Butler Co., Ohio.**

Please mention this paper. 24-23db

FOR SALE.

My supply business, shop building, and tools, with 70 colonies of bees. Want to sell at once. Low price and easy terms. Must be disposed of before Dec. 1st, 1890. Address

14-15-16d JAS. A. NELSON, Muncie, Wy. Co., Kan.

☞In responding to this advertisement mention GLEANINGS.

Bee-Keepers' Supplies.

WHY ✧ SEND ✧ LONG ✧ DISTANCES?

SEND NAME ON POSTAL CARD FOR MY NEW PRICE LIST TO

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.

Formerly of St. Joe Sta., Butler Co., Pa.
ESTABLISHED IN 1884. 9tfdb

Please mention this paper.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must SAY you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To exchange 1 lb. of thin fdn. for 2 lbs. of wax. 7tfdb C. W. DAYTON, Bradford, Ia.

WANTED.—To correspond with parties having honey, potatoes, peaches, apples, etc., for sale. Prompt attention given to all letters.
EARLE CLICKENGER, Commission Merchant,
15-16-17d Columbus, O.

WANTED.—Second-hand section machine. Give price, and time in use. C. P. BISH,
15-16d Grove City, Mercer Co., Pa.

WANTED.—I want a situation in a Cuban apiary. 12 years' experience. Reference, C. F. Muth & Son, Cincinnati, Ohio. Address A. CARDER,
15-16d Hebron, Boone Co., Ky.

WANTED.—To exchange a Shipman oil engine, one horse power, in good order, for 1000 pounds of white extracted honey, or offers.
15tfdb F. A. SALISBURY, Syracuse, N. Y.

WANTED.—I will exchange sewing-machines, new, and fruit-trees, for honey. Address
15-24 E. PETERMAN, Waldo, Wis.

WANTED.—To rent for cash or sell farm of 60 acres, five miles from this city. About 25 acres in fruit. 13 acres of strawberries, 3 acres of raspberries, 3 acres of blackberries, 1 acre of grapes, 5 acres of apple, peach, and plum trees. Balance of land No. 1 for marketing purposes. Buildings and other improvements in fine shape. Reason for selling, too many irons in the fire.
EARLE CLICKENGER, Com. Merchant.
15-16d Columbus, O.

WANTED.—A situation in an apiary in one of the following States: California, Texas, Colorado, Illinois, or North Missouri; or I would buy a small apiary. I can give good reference. W. T. ZINK,
Nichols, Greene Co., Mo.

WANTED.—To exchange red-clover Italian bees in portico L. hives, for set of tinner's tools, good horse and buggy, or any thing useful. A big bargain given, especially for tinner's tools. 16d
J. A. BUCKLEW, Warsaw, Coshocton Co., Ohio.

WANTED.—To exchange self-inking printing-press, 3x5, for a good violin. C. A. CAMP,
16d Painesville, Lake Co., O.

WANTED.—To exchange 40 colonies of brown and hybrid bees for winter apples. Bees to be shipped in shipping-cases, 8 L. frames per colony. Write and make me offers. H. O. MCELHANY,
16d Cedar Rapids, Iowa.

WANTED.—To exchange beautiful young Italian queens from imported stock, for honey or other offers. MRS. OLIVER COLE,
16tfdb Sherburne, Chenango Co., N. Y.
Chenango Valley Apiary.

WANTED.—One hundred empty brood-combs in Simplicity frames. THOS. GEDYE,
16d Kangley, LaSalle Co., Ill.

WANTED.—To exchange Italian bees in portico L. hives for hives in flat or one-piece sections. A. W. GARDNER, Centerville, St. Joseph Co., Mich.
16-17-18d

WANTED.—To exchange extracted white-clover honey for a 4 or 6 inch comb foundation-mill.
16d AUGUST BENNER, Cottleville, St. Chls. Co, Mo.

WANTED.—To exchange babbitt lathe foot-power with circular saw, and scroll-saw attachments, for extracted honey, or wax and queens. 16d
C. H. LUTTGENS, Hammonton, Atlantic Co., N. J.

WANTED.—To exchange Italian bees and queens for foundation or supplies or other offers.
W. D. BLATCHLEY, Binghamton, Broome Co., N. Y.
16 17d

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

Black queens, 20c; hybrids, 30c.
J. A. BUCKLEW, Warsaw, Coshocton Co, Ohio.

I will sell a few hybrids at 20 cts.: and mismated ones at 30 cts. C. G. FENN,
Washington, Ct.

About 10 choice hybrid queens for sale. 30c each or 4 for $1.00. GEO. DENMAN,
Pittsford, Hillsdale Co., Mich

I have 30 nice hybrid and 35 young black queens for sale. Send me 50 cents and get one of them.
16-17-18d A. D. ELLINGWOOD, Berlin Falls, N. H.

We are now requeening our apiary, and will have about 25 mismated Italian queens which we will sell at 25 cts. each, or 5 for $1.00.
LEININGER BROS., Douglas, Putnam Co., Ohio.

15 black and hybrid queens for sale at 25c each, 5 for $1.00. WM. T. REHRIG, Beltzville, Carbon Co., Pa.

A few hybrid queens at 20c each. J. A. ROE,
Union City, Randolph Co., Ind.

40 selected black and hybrid queens at 20 and 25 cts. each. O. F. SUNDERLAND,
Box 411, St. Albans, Franklin Co., Vt.

12 or 14 mismated queens for sale for 50c each.
T. L. THOMPSON, Blairsville, Indiana Co., Pa.

Hybrid queens for sale; 15 at 40 cents each.
JOSEPH COSTELLO, Palmetto, Manatee Co., Fla.

THOSE 75 Ct. ITALIAN QUEENS

FROM THE OLD MAID'S APIARY

Are giving perfect satisfaction. Orders promptly filled. Satisfaction guaranteed.
Address **E. D. ANDREWS, P. M.,**
North New Salem, Mass.
Please mention this paper.

Carniolan and Italian Queens, 50 Cts. Each.

I am requeening every thing to imported Carniolan stock, and offer the queens out of two apiaries as above. Address
J. A. ROE, Union City, Ind.
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS, 50 CTS.

I will send nice young laying untested queens by return mail at the above price, and guarantee safe arrival. Send in your orders at once.
Address F. H. PETTS, Warsaw, Mo.
☞In responding to this advertisement mention GLEANINGS.

WILL SELL APIARY OF 33 COLONIES IN fine condition (good location). Also 40 acres of land one mile from lively town. Address all inquiries to BOX 98, White Cloud, Mich. 16-17-18d

CHEAP! Twenty tested Italian queens, only 75 cts. each. Pay after queen is received, if preferred. S. F. REED,
N. Dorchester, N H.

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CONVENTION NOTICES.

The Southwestern Wisconsin Bee-keepers' Affiliated Association will meet Oct. 8, 1890, in Platteville, Wis., at the residence of E. France, to commence punctually at 10 A. M., sharp. There will be a large turnout of prominent bee-keepers of the State. A question-box, free to all, in which any subject you wish discussed can be presented and answered. Let every one be on hand and bring in his report for 1890, starting at spring count, or May 1. There will be blanks sent to each member for this purpose, in due time, by the secretary.

N. B.—The date of the above convention has been changed from the 1st to the 8th.

Boscobel, Wis. BENJ. E. RICE, Sec'y.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—Selling well for this season of year, and receipts do not keep up with sales this week. 14@15 has been obtained for all fine white comb in 1-lb. sections. Extracted, California, 6½@7 cents; and domestic, 7 cents for prime. The quality of honey being offered is fair—not all of it as good as usual. *Beeswax*, 25@26.

Aug. 7. R. A. BURNETT, Chicago, Ill.

ST. LOUIS.—*Honey.*—We find ready sale for extracted and strained honey in barrels, at 6c. Comb honey steady, at 12½@13½. *Beeswax*, 26½.

D. G. TUTT GROCER CO.,
Aug. 8. St. Louis, Mo.

ALBANY.—*Honey.*—We have received one consignment of new honey; the quality is only fair. We have sold a part of it at 15c. From advices received, the indications are that the crop will be short in New York State.

Aug. 8. CHAS. MCMULLOCH & Co., 339 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—The receipts of comb and extracted have been very light. Demand for comb good, at 14@15 for 1-lb. white; dark 1-lb. is 12@13. Very little demand for extracted yet.

Beeswax, 22@25.

Aug. 9. CLEMONS, MASON & CO., Cor. Fourth and Walnut Sts., Kansas City, Mo.

DETROIT.—*Honey.*—There is a little new honey in the market, and it is held at 15 cents. Extracted, 7@8. *Beeswax*, in fair demand at 26@27.

Aug. 8. M. H. HUNT, Bell Branch, Mich.

NEW YORK.—*Honey.*—Southern strained, 60@65c per gallon; Southern extracted, 65@70c per gal.; orange bloom, 7@7½c per lb, California, 6@7c. No new comb honey has arrived as yet.—*Beeswax*, dull and declining, 27c for a choice article.

HILDRETH BROS. & SEGELKEN,
Aug. 11. 28 & 30 West Broadway, N. Y.

WANTED.—Honey to buy. Please quote prices.
F. S. MCCLELLAND & BRO., New Brighton, Pa.

WANTED.—A quantity of light extracted honey in bulk packages; will pay 8c per lb. cash, delivered here. C. W. DAYTON, Bradford, Iowa.

FOR SALE.—500 lbs. of good comb honey at 15 cts. per lb. cash, on board cars at Bay City, Wis., or Redwing, Minn. FRANK DURAND, Esdaile, Pierce Co., Wisconsin.

ITALIAN QUEENS CHEAP.

We will sell Italian queens at the following low prices: Tested, 85 cts.; one-half doz., $4.75; untested, 65 cts. each. Satisfaction guaranteed.

LEININGER BROS., Douglas, Putnam Co., Ohio.

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS. 85 Cts. Each, or 4 for $3.00.
F. H. MCFARLAND, St. Albans, Vermont.

SPECIAL CROPS.

A magazine for advanced agriculturists; 25 cts. per year; sample 7 cts. Also, Black Minorcas, B. Leghorns, and S. Wyandottes; eggs of either, per setting, 75 cts.; 26 at one time, $1.00. 4-50d

C. M. GOODSPEED, Skaneateles, N. Y.

☞In responding to this advertisement mention GLEANINGS.

KIND WORDS FROM OUR CUSTOMERS.

BEES ARRIVED SAFELY.

The bees arrived all safe in due time. I am well satisfied with them. They are doing nicely, and seem to like their new home. GEO. FISK.
Marion, Mich., July 25, 1890.

QUEEN VERY NICE.

My bees came all right. I am well pleased with the change in my order. The queen is very nice.
Ottawa, Minn., July 14. MRS. S. COFFIN.

BEES IN GOOD SHAPE.

I received the queen and bees in due time. She is laying. I am pleased with her. Other goods arrived safely; all satisfactory. E. C. MORTON.
Fairview, O., July 15.

SENDING STRAWBERRY-PLANTS IN AUGUST.

The strawberry-plants ordered just a week ago to-day are now growing nicely in my garden. They came in fine condition, and scarcely wilted a bit. Thanks for the four extra ones. I take several papers, but I like GLEANINGS best of all.
Newark, O., Aug. 12. G. H. TAYLOR.

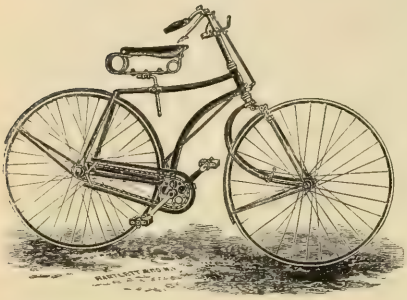
LAYING BEFORE SHE HAD BEEN OUT OF THE CAGE 10 MINUTES.

The queen you sent me July 1 was received at 3:30 P. M. of the third, and I introduced her the same evening. I was very busy, so did not look after her till to-day, when I found her still in the cage. I pulled the cage off and watched to see how they would act. The queen started down toward the bottom of the frame around and half way up the other side, all the time poking her head into the cells, when she stopped and began depositing eggs in the cells, and that before she had been out of the cage ten minutes. GEO. C. JONES.
Herman, Minn., July 7, 1890.

A KIND WORD FOR OUR INDUSTRIAL BOOKS, ETC.

Since your busy season is over, perhaps you would like to know how your abecedarian in this section is getting along. Every book that I have received from you has proved quite a blessing to me, for which I feel thankful to you and the great Giver of all good. We have had plenty of honey, through the instruction of your A B C book, and the carp are ready twice a day for their meal, and I intend to build another pond this fall. So much for the A B C of Carp Culture; and the A B C of Potato Culture helped me to raise 200 bushels last year. Potatoes were a failure in this section this year. Now, what I want is for you to set me aright on the road of growing strawberries successfully, as I want to keep up close to the foot of the class among your scholars. Keep on with your foot-notes and sermons, and by all means with your special department for raising crops. G. H. KNISLEY.
Tatesville, Pa., Aug. 8.

VICTOR BICYCLES



Will carry you up hill easier and down hill faster than any others you ever mounted.

ALL INTERCHANGEABLE.
ALL HIGH GRADE.
ALL RIGHT.

Send for Catalogue.

OVERMAN WHEEL CO., Makers, Chicopee Falls, Mass.

☞In responding to this advertisement mention GLEANINGS.

"BANNER" Years ago, when I began working with my brother, the editor of the *Review*, his apiary was called the "Banner Apiary." A large share of this apiary is still kept at the old place, where I manage it on shares. It is stocked with a fine strain of Italians, and I have been saving the best cells from the best colonies, when they swarmed, and having the queens hatched and fertilized in nuclei. These queens I offer at 75 cts. each, or three for $2.00. No black bees near here. Can fill orders promptly, and will guarantee safe arrival. Make money orders payable at Flint, Mich. Address
15tfdb **ELMER HUTCHINSON, Rogersville, Genesee Co., Mich.**

☞In responding to this advertisement mention GLEANINGS.

EVERBEARING STRAWBERRY. Descriptive price list free.
SETH WINQUIST, Russellville, Oregon.

Carniolan Queens.

Untested, reared from an imported mother, $1.00. Nearly all will prove tested.
F. SCOTT, Cloud, Ohio.

NOW FOR A BARGAIN.

I will sell cheap my entire stock of good Italian bees, one honey-extractor, and all my bee-fixtures; and if sold soon will sell the honey also, as I wish to retire from the business. MRS. REBECCA KINNEY.
16 19db Bloomsburg, Col. Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

NOW is the time to set **STRAWBERRIES** for next year's fruiting. Write for fall price list of plants and Secrets of Success in Growing Small Fruits; sent free, on application to I. A. WOOLL,
16tfdb Elsie, Mich.

Alley's Business Queens

ONE DOLLAR EACH.

HENRY ALLEY, - - WENHAM, MASS.
Please mention GLEANINGS. 15tfdb

CARNIOLAN QUEENS,

Circulars giving special prices for Carniolan queens, bred the remainder of the season from pure and gentle mothers, the workers of which can not be surpassed as honey-gatherers. Send for circular.
JOHN ANDREWS,
15tfdb **Pattens Mills, Wash. Co., N. Y.**

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN BEES.

For the highest type of these bees see our advertisement in GLEANINGS, July 1 No. 15ttdb
J. B. MASON & SON, Mechanic Falls, Me.
In writing to advertisers please mention this paper.

---

500 Italian Queens For Sale. Tested, $1.10, three 1or $3.00. Untested, 70 cts. each; three for $2.00. Also bee-keepers' supplies, etc. 16-page circular free. 15tfdb
JNO. NEBEL & SON, High Hill, Mo.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—My queen rearing apiary and business, dwelling and out-buildings, and about 8 acres, for $1700 00. Fruit and berries; fine location; pleasant village; a nice home at a bargain. Also privilege of an out-apiary. Write. 15tfdb
CHRISTIAN WECKESSER, Marshallville, Wayne Co., Ohio.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

A WELL-ESTABLISHED SUPPLY BUSINESS. Will invoice the stock with a reasonable discount, and no charge for the business. If not sold before the 4th of Sept., will auction off at that time. Have an Armstrong T-tin machine which will make 500 complete T tins in an hour. A fine working Given foundation press; Horse Power and Rodgers saw; Hives, made and flat; Sections, Extractors, etc., and 50 colonies of Italians.

Terms cash or satisfactory security. Will quote prices or receive bids by mail, on the whole, or any article. **GEO. M. TERRELL,**
16d **Jerseyville, Ill.**

☞In responding to this advertisement mention GLEANINGS.

UNTESTED Italian Queens, 75c each, three for $2.00. Tested $1.00. H. G. FRAME,
16tfdb North Manchester, Ind.

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

9tfdb **OLIVER HOOVER & CO.,**
Mention this paper. **Snydertown, Pa.**

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**
Please mention this paper

Vol. XVIII. **AUGUST 15, 1890.** **No. 16.**

TERMS: $1 00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

SHIPPING AND SELLING HONEY.

SOMETHING FURTHER ON THE SUBJECT, FROM OUR COMMISSION MEN.

Since our last issue we have received the following in reply to the series of questions propounded on page 551, from E. J. Walker, of Philadelphia:

1. 24 sections, about 20 lbs.
2. 4¼ x 4¼.
3. We prefer that sections shall hold a little less than a pound.
4. Our customers sell by the section.
5. None, if put up in nice shape (paper boxes).
6. Either one sells.
7. 60-lb. cans, two in a case.
8. Any time after June 1.
9. Go over it all and put it in shape.
10. We never buy, unless very low.

REMARKS.

We think this a good year to get back what was lost last year in low prices; and the shipper who gets his goods on the market early is the man to get all the advantage; for if the party does not need the money on his stock, and there were a chance for an advance in price, the seller or commission man is best calculated to know that, and can be more independent, and hold it for better prices; and if it is a large crop he can have it to sell when buyers come along.

You ask whether, if the shipper sends his crop on commission, he can get more for it than if he sells outright. Well, that depends very much on circumstances, and what he can get for it. If he can sell at the top price, no doubt that is best; but the demand for comb honey varies so much sometimes that we do not sell much before the new year; and then, again, much is sold after that time; and the lower the price, the more of it is consumed; and as for extracted, it may sell all the time for manufacturing cakes, etc. Last year, if we had held our stock a little longer we might have got more for it; but then, two weeks later there was *no* demand. We are this year in much better shape to get prices, as we are known now as the depot for honey, and the only ones handling honey in a large way.

If the bee-keepers would not ship to every man who is merely in the commission business, they would get more for their goods, as most commission men do not know how to take care of honey; and if it should come to them in a leaky condition they sell at any price to get it out of the way, without going over it as we do, taking out the broken and selling it at a price for broken, and getting a regular price for the man who sends it. In that way the market is not broken in prices, and parties could not get hold of it late at such low prices, to retail it so low that other buyers will not buy it, as they can not pay regular prices and compete. So our advice would be to all who have honey, to consign it to one party in a city, and make that headquarters for honey there; we could have a wholesale and retail price for honey, which would make a fair average for the shipper. We must have the small buyer as well as the large one, to use up the odds and ends and small lots.

Our advice in shipping honey is to send 24 sections to the case, 20 to 22 pounds to the case, and pack about 100 to 150 pounds to the case or crate; in other words, pack 6 to 8 boxes in a lot, as the cases come cleaner, and are not so liable to break down in handling. Freight is the best way to send it; no matter how the extracted is sent. Cans, 2 in a case, are preferable. E. J. WALKER.

Philadelphia, Pa., Aug. 1.

Since the receipt of the above, the follow-

ing has come to hand from Hildreth Bros. & Segelken, of New York, who reply to the questions as follows:

1. Single-tier cases, holding from 24 to 30 1-lb. sections, and 12 or 15 2-lb. sections.

2. 4¼x4¼.

3. Our trade demands light-weight sections in every style, whether in paper boxes, glassed or unglassed.

4. We sell by actual weight; but the retailer generally sells by the piece.

5. Dark honey, off grades, sections mixed with buckwheat honey, find rather slow sale, and will not bring more than buckwheat, and often not as much. The same may be said of unfilled sections. A straight buckwheat in the comb finds ready sale in our market.

6. We would say, extract all dark and mixed honey, excepting buckwheat.

7. We prefer barrels and half-barrels for all kinds of extracted honey. They are the cheapest package, and we can sell them just as readily as smaller packages. Where barrels or half-barrels can not be obtained to advantage, we would recommend kegs holding about 150 lbs. or more.

8. Comb honey should be shipped to our market during September and October. Experience teaches us that the first season, the early season, is the best, regardless of short or large crop. Early in the season every one is in the market, and ready to buy at the prices established; while, later on, the stock accumulates, and buyers shop around more and hesitate in buying. In all our experience we have never seen the prices advance during November and December; on the contrary, they generally decline.

9. We sell the broken-down honey to the best advantage, generally to peddlers and cheap stores, and as quick as possible. In many cases, when the combs are not much damaged, we repack it. We make more or less claims every season against the transportation companies, but as the shipper's receipts are generally signed "Owner's risk," the company will not entertain the claim. We should like to say, always ship honey by freight, and never by express. It comes by freight in just as fine and often much better shape, and the charges are but half.

10. Most decidedly the producer receives more when consigned than when sold outright. If we buy, we take all the chance of a decline in the market, consequently we want to buy as low as possible, as we expect to make a larger profit on a purchase than on a consignment. If consigned, it is to our interest to get the highest possible prices; the higher the prices, the larger our commission.

Hildreth Bros. & Segelken.

New York, N. Y., Aug. 6.

THE SOLAR WAX-EXTRACTOR.

DR. MILLER GIVES SOME IMPROVED DIRECTIONS FOR USING IT.

I have made excellent work extracting wax by tearing open one corner of an old dripping-pan, putting it in the oven of the cook-stove on a slant, and letting the open corner project out, with a vessel under to catch the dripping wax. The same pan arranged in a box with a window-sash over it makes a solar extractor, although rather clumsy, and not always very close. But I found, as time went on, that a good deal of wax was wasted because not always promptly melted. When such things are left for some future time, that future time doesn't always come. Last spring I thought I would find out whether the Green extractor was as good as represented, so I ordered one. I have found it all my fancy painted it. If it were of no other advantage, the one simple fact that it does its work so nicely that you are tempted all the time to hunt up more bits of wax to throw in is sufficient to make it a paying investment. But why don't you send instructions with it, friend Root? True, it is so simple that any one can readily learn how to work it, but he would learn more easily if some things were told him. For instance, the matter of cleaning out the debris after the wax has all drained out. I found that the hardest thing about the whole business. I commenced on a lot of stuff scraped from the top-bars of brood-frames, largely composed of bee-glue. Each morning, before filling up afresh, I scraped out the shallow pan with perforated bottom. It had a layer of bee-glue about half an inch thick, and you can imagine what hard work it was to dig it out with a knife. Then I put it in cold water to make it brittle enough to break by pounding on it, and nearly spoiled the pan. A slip of printed directions would have been worth to me many times its cost.

For the benefit of some who may hereafter get these extractors, let me give a few suggestions. Set the extractor where it will get the sun throughout the day as much as possible. If you want it to have the least care possible, set it facing south, with the reflector standing perpendicular, and let it thus remain all day long. If you want to get more work out of it, change its position two or three times in the course of the day, placing it each time so it will face the sun an hour or two after you have placed it. By moving the cover containing the reflector up and down you will see the bright spot made on your pan of scraps by the reflected rays of the sun. Set the cover open enough so that this bright spot shall be at the middle of your scrap-pan at the west end. As the sun moves it will work to the east end.

To make the cover stand at any desired angle, take something like a piece of lath with holes bored half an inch or more apart throughout one end. Drive a nail in one end of the cover near the front edge, and another directly under it in the box, then slip your lath on these nails. Don't attempt to clean out your scrap-pan when it is cold. Wait till the sun warms it up melting hot, then take out the pan, and a thin bit of board or shingle will scrape it out easily. During the middle of the day, or later, you will find the wax in the lower pan in a liquid state, or at least part of it. Have standing by the extractor a milk-pan or other vessel with sloping sides, into which you can pour the part that is liquid. Or you may let the lower pan remain without emptying till it is nearly full enough to interfere with the scrape-pan. Then set it in the oven of the cook-stove, and pour out when melted. When the glass becomes daubed with wax, rub it off with dry newspaper when hot.

There, Bro. Root, amendments and additions are in order in a foot-note.

PREVENTION OF BURR-COMBS.

I haven't made the experiments I desired with different top-bars, partly because at two different

establishments I couldn't get my orders filled. I have, however, learned a little. Top-bars ½ inch thick, accurately spaced $\frac{5}{16}$ apart, do not prevent burr combs. Top-bars reinforced with separator stuff making them ⅞ deep are a great improvement but not perfection. To my surprise, even after I have scraped top-bars off clean, I do not find slat honey-boards work as well as in former years. That makes me more than ever anxious to learn how to get along without them.

Marengo, Ill., July 21. C. C. MILLER.

Why, friend M., we do send out directions for using the solar wax-extractor—that is, we intend to do so; but I presume during the rush of business last season, somehow or other the sheet was left out. The same directions, or essentially the same, are given in "Wax," under "Solar Wax-extractor," in the A B C which you have. But you have added some items which we are glad to have. Yes, sir; when bee-keepers know more about the solar extractor they will use it more than they do. Ours is in use in the apiary constantly, when the sun shines, and we should hardly know how to get along without it now. Instead of having lumps of wax stuck about here and there, and more or less litter in the honey-house, we have instead several nice cakes of *yellow* wax. We do not bother to have it re-melted in the oven. If your pan has sloping sides (and I presume it has) the cake ought to lift out after it has hardened. I am glad to get your testimony in regard to honey-boards and thick top-bars. I have not heard any thing positively against them, except that a few having never tried them won't use them because "they are too much wood." E. R. R.

BEES AND CEREALS, AGAIN.

PROF. KOONS REVIEWS THE QUESTION; ANOTHER OF AGASSIZ'S BLUNDERS.

MY object in asking Prof. Cook a question through GLEANINGS, see page 449, was to get confirmation on the point of the usefulness of bees on wheat, etc. I ran across the statements of M. Jobard, a French writer, in his "The First Hive," where he makes such positive statements concerning the utility of bees on the cereals; and they were so contrary to my previous understanding of the subject that it fairly stunned me. I jumped up, shook myself, rubbed my eyes, and gave myself a pinch just to reassure me that I had not been asleep, Rip Van Winkle like, all these years, and allowed the world to get so far ahead of me in the natural history of common things on land, while I, with others, during summer vacations and spare moments, have been poking our noses, or, rather, machinery, several miles down into the old Atlantic, to the bottom of the Gulf Stream, to learn what new and hidden treasures ocean depths contain. I think, by the way, that some time I must tell the readers of GLEANINGS something of our experiences and finds, out there, but not this time.

Immediately upon reading Monsieur Jobard's opinions concerning bees and cereals, I said, "I shall ask A. I. Root, or through him Prof. Cook, just for reassurance; yet I know that I am right, for I was reared among the Ohio wheat-fields, and have observed nature somewhat closely all these years, and have never yet observed a bee at work upon wheat, rye, oat, or grass."

The statements of M. Jobard run like this: "There are some districts in Saxony where the farmers raise no other crops than wheat; and a wheat of such superior quality as to be always sold at a high price as seed wheat. In these districts all farmers, without exception, have bee-houses; but these bee-houses, instead of being fixed, are mounted on wheels. Some days before the wheat blossoms, each farmer hitches his team to his movable bee-house, and conducts it during the night into the middle of his wheat-field." . . . "I have a bee-house in the middle of a field, and it is always the field surrounding my bee-house which furnishes my seed-wheat."

But here, most likely, as is so often the case, the overzeal for a theory, or the want of a little research, led the writer to make these statements and others like them; and all the more pity, because some of his errors have been finding their way into some of the leading publications of New England, and my first step was to be absolutely sure of my ground, and then expose the errors.

Like this Frenchman, the great Louis Agassiz once wrote a very learned (!) essay upon "The Mode of Motion of Certain Sea-Urchins," when if he had gone to the water's edge half a mile from his study-window, by a little judicious research he could soon have proved that all his theorizing was entirely erroneous. Zeal for a theory sometimes leads very great men astray.

Some flowers produce only stamens, or the male organs, while others, sometimes on the same plant in certain species, and in other species on entirely distinct plants, produce pistils, or the female parts of the flower; and still other species produce both stamens and pistils in the same flower. Those possessing only pistils must, of course, have pollen brought from the stamens or they will not produce fruit; and, again, some of those possessing both stamens and pistils can not be fertilized by the pollen of the same flower in which it grew; or if fertilization does take place it is very imperfect, hence must have pollen brought from another flower to insure the perfect growth of the fruit; hence the need of the aid of insects or the wind to insure the productiveness of some of our plants. Ordinary red clover is a good illustration of a plant needing the aid of insects, and in this particular case the bumble-bee is the insect that performs the work of cross-fertilization.

Again, there are other plants which reproduce by what Gray calls close or self fertilization; that is, the stamens of any particular flower fertilize the pistil of that flower; and in these, bees can play no important part; and conspicuous among these, as Prof. Cook well says, are wheat, oats, etc.; hence we can readily understand the blunder of our French writer.

I have no bee-men near me who have had a long experience, and my residence in the State is not sufficently long to enable me to judge of the merits of this year as compared with the best of the white-clover harvest in this State; yet this has certainly been a very good season thus far, as white clover bloomed early, and the rains have been sufficiently frequent to keep it fresh and in the greatest profusion, and bees have gathered a large quantity of honey. Basswood is so scarce here in Eastern Con-

necticut that we can depend upon it but little as a honey-plant.

Bees wintered well in this State, and those who pretended to care for them at all had no losses. We keep but few here at the Agricultural School. We wintered 8 in chaff hives. There was not a month during the winter that they did not have at least one good flight, and they came out this spring in splendid condition. B. F. KOONS.

Storrs, Conn., July 15.

Friend K., we are very glad to have you take this matter up and stop it as far as possible before these blunders get the run of the papers. By the way, it does seem strange that our newspapers grab for a blunder or falsehood, and give it no end of prominence, while true statements in great numbers are passed by. I have observed bees gathering pollen from the heads of timothy, several times, but never, if I remember, on any of the grains. For some time past there seems to have been a sort of gulf between scientists, or at least a certain class of scientists, and practical industrial people. We trust, however, that this state of things is passing by. Our experiment stations are doing very much indeed to bring these two classes of workers together, and to throw out theory promulgated by so-called scientists without *any* practical knowledge. What you say about the sea-urchins reminds me of the time when Agassiz and Tyndall undertook to teach about bees when neither of them had ever looked into a hive, apparently.

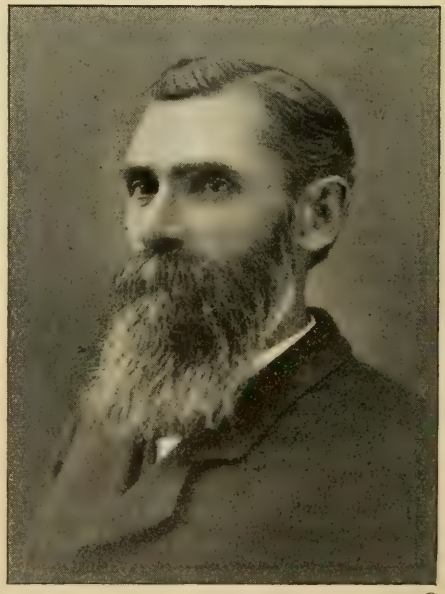
H. D. CUTTING

AS HONEY-EXHIBITOR AND EXPERT JUDGE AT FAIRS AND HONEY-SHOWS.

Mr. Editor:—I am requested to give a brief account of Mr. H. D. Cutting's work in connection with apiculture in Michigan. Although I am very much occupied at present, my friendship for Mr. Cutting, my appreciation of his valuable services, my knowledge of his enthusiastic work, and my desire that earnest, faithful, telling effort may be recognized, all make me more than willing to undertake the pleasant duty, even though, in the hurry of the season, I may fail to do justice to Mr. Cutting and his valuable services.

A word regarding Mr. Cutting as a man is necessary to understand his exceptional success. He is always a gentleman, and so wins the regard and confidence of those he may wish to influence. His pleasing address adds further to his power of persuasion. Most of all, he believes in his cause, and so acts with an energy and enthusiasm that attracts, then interests, and at last persuades. Lastly, he thoroughly studies any enterprise in which he engages, and so becomes a master, a leader as well. So in his work he never says "go," but, rather, "Come on, boys."

In two capacities Mr. Cutting has shown signal ability in connection with Michigan apiculture; has wielded exceptional influence, and has achieved brilliant results. I refer to his position as secretary of the State Society, which I think he has held since 1881, and his valuable service in connection with the State Fair, where, owing mainly to his efforts, the premium list has advanced from $5.00 to over $300, which, if I am not mistaken, is the largest and most generous offered in the United States. Our State Society stood high when Secretary Cutting assumed the duties of secretary. We had previously had the benefit of such wide awake, capable officers as Bingham, Heddon, Benton, etc., and so it was no easy task to keep the interest and work up to the high-tide mark, especially during the discouraging seasons that have marked about a third of Mr. Cutting's term of office. Yet Mr. Cutting has more than achieved that distinction. While I would not say that the interest and profit at some of the old first meetings, with Moon and Rood, Postman, etc., on deck, were ever surpassed—those old meetings were delightful—I will say that, for the whole period together, the past nine years have stood at the front. The programmes, general spirit of the meetings, and valuable results achieved, have been most admirable, as many can attest; and for all this, secretary H. D. Cutting should have chief praise.



H. D. CUTTING.

Nor has Mr. Cutting's record been any less bright in relation to our honey-exhibit at the State Fair. In the old time, honey was sandwiched in between butter and vinegar, with somewhere about $5.00 offered for premiums. Mr. Cutting appealed, on behalf of the bee-keepers, to the authorities. His petition was listened to and granted, and now Michigan has a special building devoted to the apiary, and offers premiums to the amount of $300. For nearly all of this we are indebted to Mr. Cutting. Nor did he stop there. The revised list once adopted, Mr. Cutting went to work with all his energy and zeal and secured an exhibit worthy a special building and a generous premium list. Few exhibitions compare with the honey-shows of Michigan in quality of exhibits and neatness of display. For all this Mr. Cutting should have chiefest praise, with Mr. W. Z. Hutchinson as a near second.

Not only is Mr. Cutting praiseworthy for his energy and enthusiasm, which have accomplished so much, but he is remarkable for his modesty and reserve. He never pushes himself to the front, but is always urging others to places of honor and responsibility. While he never pushes himself for position, he always gives most efficient service when called upon to act. Michigan bee-keepers can never be too grateful for the valuable work that he has wrought in our State.

A. J. COOK.

Agricultural College, Mich., July 22, 1890.

In addition to the well-written sketch above, of Mr. Cutting's career as a honey-exhibitor, and of his services in connection with bee-associations, we would add that our friend was born in Hudson, Columbia Co., N. Y., July 22d, 1842. He attended school and worked in a printing-office till Sept. 9, 1858, when he removed to Michigan. He began working for the Michigan Southern & Northern Indiana Railroad, now known as the L. S. & M. S., in the capacity of a baggage-man. In 1861 he left this position and went into the army. In the spring of 1863 he commenced work at Newburg, N. Y., building marine and stationary engines. He was married to Miss Frances Gardner, Sept. 27th, 1865. He now has a family of seven children—four boys and three girls. In 1867 he removed to Clinton, Mich., and started a machine-shop of his own, and he has been engaged in building machinery ever since.

He has been interested in bees for a good many years, and commenced the business in 1866. He has not been a prolific writer, but, as will be seen by Prof. Cook's sketch, he has rendered valuable service to bee-keepers, particularly those of Michigan. He was president of the South-eastern Bee-keepers' Association, also president of the North American Bee-keepers' Association for 1886, and is now superintendent of the Bee and Honey Department of the Detroit Exposition. He has acted as an expert judge of bees, honey, and supplies, at many of the largest exhibitions. Besides bees, Mr. Cutting is interested in poultry and small fruits. He is also a student of the microscope, and finds great pleasure in all these pastimes. He is strongly opposed to the use of intoxicants and tobacco, and so far none of his children use them. So much for a good example.

Friend Cutting paid us a visit a short time ago, and we found that he was not only enthusiastic on bees and every thing connected with the industry, but he enjoyed intensely talking about machines and machinery. He is a very fine mechanic, and has a splendid knowledge of almost every thing connected with his trade.

RAMBLE NO. 26.

IN WAYNE COUNTY.

THE R. & W. R. R. conducted us rapidly into Wayne County. This and several other counties bordering the shores of Lake Ontario for a distance of a hundred and fifty miles, are all noted for their fertility, and especially for the fruit interests centered there. Large orchards of apple, pear, and other fruits, both large and small, are visible at all stages of the journey. Peaches are also grown to a certain extent. As a consequence, from so much fruit culture Wayne County is one of the pioneers in the evaporating industry; and taken up at first on apples, the industry now extends to all kinds of fruits and to many vegetables. Every village has one or more large evaporators; and many small ones, with a capacity of five or ten bushels per day, are seen in farmyards. We learned that peppermint is also raised to a great extent in this county. In fact, a great share that is put upon the market is produced here.

In the pleasant village of Williamson we met Mr. Ashmead, who has kept bees quite extensively, but now has only a few colonies. Mr. A. fills out his spare time with taxidermy, and also in the fruit-business. He has spent several winters in the South, especially in Florida and South Carolina, and has had much experience in different localities, and thinks that western New York, and especially Wayne County, will not give bountiful yields enough to warrant any one to make a specialty of bee-keeping. While the immense orchards may yield much honey, the weather is usually unfavorable for bees to take full advantage of the brief honey-flow, and it is only in an exceptional year that bees store any surplus from this source.

After a brief call we sought the object of our journey into Wayne County, an old-time relative, and stopped over Sunday with him. We found him interested in fruit culture, but not in bees, and also found him, with the aid of the *Free Thinker*, trying to prove that Lincoln was an infidel, and also trying to demolish Samson. As to whether Samson rent the lion in twain or not, seemed to the Rambler a small thing to argue over. We do not pretend to understand all that happened over 3000 years ago; but we do know, both Christian and infidel, that a new era dawned when the gentle Galilean came upon earth, and gave us a religion of love; and if it is a failure in any place it is not the fault of the teachings, but of the one who does not receive the truth. This stumbling over things we can not understand, and which are of no *vital* interest to us in this era, was neatly illustrated in a sermon heard by the Rambler. Said the preacher, "When you eat a fish you pick out the bones and lay them aside and consume the life-giving flesh. So with the Bible. When we come to a hard bone, lay it aside; there is untold richness for the mind to feed upon without. But, my hearers, how many are devoting their energies to the gnawing of the lifeless skeleton!" Our friend, though versed in the false doctrines of the *Free Thinker*, was not so well versed in the Scriptures; for while in Sunday-school in the afternoon, the teacher asked him for a passage of Scripture from Hebrews; and after fumbling through Isaiah and the Psalms, said he in the Rambler's ear, "Where in the Dickens *is* Hebrews?" My opinion was clear, that more study of Scripture and less of the *Free Thinker* would have resulted in a far different moral condition of his mind.

I found my friend putting much faith in signs and other superstitions; and his theory as to the cause and cure of fever and ague was peculiar. He claimed it to be a spinal disease, because the chills run up the backbone; and a sure cure for it is to crawl downstairs head first for several days in succession.

Well, we left our friend with his infidel books and his theories, and we next met with a genuine surprise. We met, near Charlotte, an old friend who formerly peddled honey for the Rambler. His experience in bee culture on his own hook had shown him the ups and downs, like all the rest of us, and we found him immensely enjoying the downs. His family called such spells tirades. His fit was the most exasperating we ever saw. It had taken hold of him bad, both internally, externally, brain and muscle. We found him near the wood-shed, surrounded with bee-hives that had formerly been a joy, and he was just slivering them into kindling-wood. In our astonishment we cried out, "Why, friend Blake, what on earth are you doing?"

"DURN THE BEE-HIVES!"

"Durn the bee-hives," says he; and after a final finish of the one under dissection, he rested on his ax-handle, and said:

"See here, friend Rambler, you and I have always been good friends. We played in the band together. I beat the drum and you blew the horn. I know you have a tender spot for bee-hives; but, durn the hives! I'll smite 'em worse than I ever did the drum;" and he smote another hive all to flinders.

"But, see here, friend, why don't you sell your hives? They are well made, of good pine lumber. You ought to get the price of the lumber out of them."

"Yes, yes; I know all about selling hives. Let me tell you a little story. Five years ago I came to this portion of the State to work at the blacksmith trade. I started in the bee-business, and succeeded well for two years; got up this hive; it is different from any other you ever saw, and I was going to get it patented; but the seasons changed, and I have had losses ever since, and now I have only five colonies out of fifty. Nobody wants the hives. They are odd size, and even when I do find a customer he is some poor shirk who never pays for them. So, here's the remedy; it is short and sure, and there'll be no danger of my spending any more time and money on the durned hives. I tell you, this bee-business is wonderful. You get more'n ten thousand traps on your hands; and when you want to get out of the business, nobody wants to buy. Why, I'd trade these forty hives for forty good milking-stools. I could sell *them* to almost any farmer."

His tirade took strong hold of him again, and with a "durn the bee hives" his ax made havoc with the fixings. Our Hawkeye caught him. We are pleased with the result, for it is a reminder of some almost similar fits on the part of the RAMBLER.

Friend R., I am very glad you have given us a touch, with an illustration, in regard to the dark side of bee culture. If anybody should ever be tempted to go into bee culture because GLEANINGS represented that it afforded better inducement for making money than any thing else, I should be very sorry. Bee culture has its capabilities, and there are, occasionally, favorable seasons or brief periods when excellent results can be made in a very short time. And it is also true that one who is full of enthusiasm, and has the good sense and judgment to succeed in almost any business, would probably make a *fair* crop during almost *any* season. At the same time, it has perhaps more disasters connected with it than almost any other industry. Of course these may, to a large extent, be averted by keen oversight and looking ahead. As with many other rural industries, the one who succeeds with bees will probably be the one who has a *real genuine love* for them.

MORE ABOUT FIXED DISTANCES.

ANOTHER DEVICE.

NOTWITHSTANDING the fact that I have not had much experience in moving bees more than in buying and selling, nor that I know that I never shall, yet I have read all the testimonials in GLEANINGS with much pleasure. On p. 451 Dr. Miller has given Ernest what he perhaps considers a pretty good "dose." I thought I would come out and help him take it. I have pondered over each new device, to see if I could find something that would help me to space frames in a hurry, especially when I'm working with a colony that takes delight in defending its home; but I have as yet found nothing that suited me. They all have the fixed distance indeed—so much so that one can't move the frames either way to get one out. Yet Ernest's remark, in his comment on Dr. M.'s article, is a *very* strong argument in favor of some kind of spacer. As Dr. Miller says, that furniture-nail seems to be the nearest practical of any thing yet mentioned in the journals; but, hold on! I had forgotten to mention the new device I have invented. Now, Ernest, earnestly listen while I try to describe it. Take strips of heavy tin and cut them into 1⅞-inch lengths, ⅜ inch wide; round the corners of one end, and punch a little hole in it for a tack; cut the other rather in the shape of a board sled-runner. From the long corner of this end, measure ⅜ inch and give it a square bend. Now for the way to use them. When you have 20 made—if your hive has nine frames that will be the number required—tack one in the upper left-hand corner of the inside of your hive, the distance from the end you want them on the frames, and even with the top. Now take the frame next to that side of the hive the spacer is on, and put one on the side of the top-bar next to you, as near the end as you think best. Treat each top bar the same way all through on that side. Now go diagonally across the top of the hive to the near right-hand corner, and tack one on the inside of the hive as before; then on the over side of each top-bar, making one spacer at each end of each frame, but on different sides. You see, with the longer part of the tin tacked on the top-bar, one at each end on opposite sides, the short end with the

⅜-inch slope bent out at right angles from the top-bar, that side of the bar at that end can not get closer than ⅜ inch to its neighbor, and the other end on the opposite side of the same. Now, as each frame is similarly arranged, also the hive, then the frames must stay just ⅜ inch apart until you wish to remove any of them, when all you have to do is to take hold of the spacer at the folded end, and raise it up, using the tack as a pivot; thus your frames can be moved almost as closely as if no attachment were present. You see, you can have frames spaced properly, and held for moving, or you can loosen the frames for manipulating, at will.

Carbondale, Kan. J. H. MARKLEY.

Thanks; but I hardly think that our bee-keeping friends would tolerate your device. The tins would take too much time to manipulate.

EARLY EXTRACTING IN CALIFORNIA.

EXPERIMENTS WITH THE DIBBERN BEE-ESCAPE.

The following article from L. E. Mercer was overlooked, as it came with an order for goods. Though it is a little late we are glad to give place to it now.

We commenced extracting the first of May, two weeks earlier than we ever did before since I have been in California. Honey is coming in quite freely for so early in the season. Our scale hive gathered 10 lbs. on the 5th day of May. On the 3d we extracted 56½ lbs. from it, all new honey. We have about 5000 sections on and nearly finished. Honey is of a much finer quality than I ever saw before, either here or in the East. Several sample bottles of it are on the table before me that I would say were empty bottles if I had not seen my wife fill them with honey. I will send you one of them, and, if you want it, several tons of the same kind.

Mr. Dibbern sent me two of his bee-escapes some time ago. We have experimented considerably with them, but they will not work for extracting. They get full of bees, especially drones, that seem to be lost, and the bees will not go through them. They worked well three or four weeks ago, before the hives were so full of bees. The drones seem to cause most of the trouble, but I have just received two more escapes from Mr. Dibbern that I think will work better, as they are only single, while the first were double; and the bees, especially the drones, would get lost between the two wires, and would fill up the space so full that they could not move one way or the other to find their way out.

You know, of course, that we have three kinds of sage here,—the black, that blooms first; then the purple, that nearly all of our honey is gathered from; and then comes the white sage, that, judging from the way nearly all honey-tables in California read, produces about all the honey here, but which, in fact, produces less than either black or purple sage. The sample I send is all from black sage, which always produces the whitest honey. The honey-flow is good at present, but the crop must surely be a light one, as we have had no spring rains. Although we had an abundance of rain in the winter, yet the honey crop is largely dependent on the late spring rains. L. E. MERCER.

San Buena Ventura, Cal., May 7.

The sample of honey from black sage is, I think, the finest we ever saw in appearance, and certainly nothing can excel it in flavor. It is certainly true, as friend Mercer says, if the bottle were filled it would be a very difficult matter to tell whether it contained something or not, without taking it up. Notwithstanding its perfect transparency, it is so thick that it hardly runs in warm weather. It seems to me that this honey should bring an extra price, for it is "gilt edge" if there is any gilt edge in the world.

FIRST HONEY IN THE HIVE OR SECTIONS; WHICH?

THE IMPORTANCE OF HAVING THE LOWER STORY CONTRACTED, AND FILLED WITH BROOD JUST BEFORE THE HARVEST.

Mr. Editor:—My attention has been called to your reply to question four, as asked by Mr. Naftel, on page 341. You there say, "Bees will be pretty apt, especially the Italians, to fill the brood-chamber first, no matter what the honey is; after that they will go into the supers if the colony is strong enough and there is a good flow of nectar. As a general rule, there will or ought to be enough inferior honey in the brood-nest to cause the first white honey to go above." Now, I seriously object to both these views, for on them hang all there is against the use of large hives for comb honey, as recommended by our fathers, and even by some of the present day, as opposing the contraction plan as recommended by myself and others, which to-day stands out prominently. No, sir! the bees must not fill the brood-chamber first with honey, and the sections afterward, Italian or otherwise, if we are to reap the best results from our bees. At the time the honey-flow commences, the brood-chamber must be filled with brood, with not to exceed five pounds of honey in it, and *one* pound will be far better than the five. If it is not thus filled with brood, the wise apiarist will take out all the combs not thus filled, and store them away where the bees can not have access to them at this time of the year; for if they once commence to store honey in the combs below, to any considerable extent, thus early in the season, instead of going into the boxes they will begin to crowd the queen with honey to a greater or lesser extent, thus removing the boxes further and further from the brood, till at last there will be little brood in the hive, little honey in the boxes, and the colony in very poor shape for winter on account of the fewness of the bees left, owing to this same crowding-out of the queen from the brood-combs. The work of every bee-keeper should be, during the fore part of the season, to see that his combs are being rapidly filled with brood, and all that inferior honey spoken of used up and turned into brood which is to make the bees for the harvest, till the hive is literally filled with brood; when, if there is a pound of honey comes in after this, it must go into the sections or no, where. Here is the rock on which those favoring the Italians and those opposing them as comb-honey gatherers split; for, if managed as given in your editorial, the Italians will be unprofitable every time; while, if managed as I propose, they will outyield the blacks as to honey every time; while at the end of the season they will have honey enough in their brood-combs for winter—when the black bees will be almost in a starving

condition. This is not mere theory, but something any one can prove to his or her satisfaction in one year by working a few colonies on each of the two plans. This season I have been working some bees five miles from home; and as the party where they are believed that the bees should not be robbed too close, I left the whole number of combs in these ten-frame Langstroth hives, to please him. The result proves just what I have said above; for after a short honey-season I have about 50 pounds of honey in the brood-chamber of the hive, with perhaps an average of 10 pounds in the sections. If these combs had been cut down to about seven, and those well filled with brood at the commencement of the harvest, the result would have been about 45 pounds in the sections, and 15 pounds below, had the bees been Italians; or if blacks or hybrids, 40 pounds in the sections and 5 below.

One of the many things about the Italian bees which please me is their desire to store honey in the brood-chamber; for if rightly managed they will give a good crop in the sections, and at the same time generally have stores enough, or nearly so, below to winter upon. Just as soon as they begin storing honey in the sections they begin storing to a limited extent in the brood-chamber; and as the honey-season draws toward a close they seem to be on the alert as to their own interest, and the queen ceases to lay as prolificly as at first, which allows of their storing the later honey in the brood-combs for winter stores, while their keeper has plenty of the most salable honey as his share of the season's work. With the Germans, Syrians, and Carniolans, the case is different; for they continue to raise brood right along at a rapid rate so long as honey comes in from the field, so that, at the end of the harvest, we have no honey to speak of in the hives, and a host of useless consumers on hand as the result of this out-of-season breeding.

I wish to go on record as saying that one of the greatest secrets of successful bee-keeping is having the brood-chamber full of brood at the commencement of the white-honey harvest. I would certainly have it thus, even if I had to take all the combs out of the hives but three, leaving the bees but three combs below till after harvest, when I would at once supersede a queen that would not keep a greater number than that filled with brood three weeks previous to the harvest. If lack of brood is caused from weak colonies in the spring, then I would unite all colonies which were thus weak, three weeks before the honey-harvest, even if I had to divide afterward, considering that I would be a gainer by so doing, should I wish a greater increase than this doubling would allow of.

Borodino, N. Y., Aug. 2. G. M. Doolittle.

Friend D., you have misunderstood us this time. We had no idea of recommending that the space for brood in the brood-chamber should be filled with honey; neither did we think of having more room in the brood-chamber than is needed. You know that, for some time back, 8-frame hives have been taking the place of 10-frame. Now, after these 8 frames are as full of brood as we can manage to get them, there will be some space for honey left around the corners; that is, when white clover opens there is generally room to put quite a little in the brood-nest without at all interfering with the brood. And this space is usually filled before honey is stored above, especially if they are Italians. Ernest made the answer you allude to; but his idea was simply this: That we should manage to get the white honey into the sections as much as possible; and in this you are in perfect agreement with him. No one nowadays would recommend any method of management that would fill the brood-combs with honey in place of eggs and brood at the commencement of the season. In fact, the great effort and aim all along the line has been to get our clover and basswood honey into the sections. When it comes time for the bees to fill up for winter, of course we have a different matter to consider; and if we can so manage as to have only one pound or less in the brood-combs, and all else in the sections, all the better. But with us, there will probably be a pound or more scattered around near the pollen; and, of course, the *pollen* is to be *all* in the brood-combs and not in the sections.

CALIFORNIA RUNAWAY SWARMS.

AN INTERESTING ACCOUNT OF HOW THESE SWARMS WILL LOCATE IN QUEER PLACES.

The strange homes that bees sometimes take up with in California make an interesting feature of study to the eastern visitor. In Los Angeles I saw a large swarm busily storing honey in the cornice of a large building on a principal street. Although there is a fine of $500 for keeping bees within the six miles square of the city limits, yet this "hive" did not seem to fear it much, and the police did not arrest them in their lofty home. Perhaps it was these same bees that I saw working away on the ripe fruit in the stalls in a crowded street when in the city the other day. Do you have city bees in the East? There are more

QUEER PLACES FOR BEES TO LIVE

here. A man plowing a vineyard told me he found a swarm in a vine, and they had quite a bit of comb built. I myself have seen comb in a bush where a swarm had evidently started a location, but had become discouraged, and left. I have also seen a swarm hanging in a bunch while some of the members were bringing in pollen and depositing it in the center of the mass of bees. At such times they would defend their branch like a hive, and I like to be careful in handling a chance swarm until it is discovered whether they have located or not.

Bees often deposit honey in the rocks in California. Quite often it is in almost inaccessible places. Several have told me of seeing it run down the rocks in hot weather. There was a newspaper account, last year, of 60 tons being taken from one place in the rocks. Much of this may have been old honey that would bring but a low price. Perhaps what would strike the eastern bee-keeper as being as novel as any thing would be to find

A DESERTED BUILDING ALIVE WITH BEES,

under the shingles, in the cornice, between the chimney and wall, and odd spaces wherever they could get. We once came on a large frame farm building that had for occupants ten or eleven swarms of varying sizes, according to the space they could get to build in. We tried to take some of them that were in particularly exposed positions, but it was too near sundown, and we had to give it

up. We were at the time coming home from a neighboring village, with three or four swarms, and some honey we had taken from the attic of a hall building. The bees do not always wait for a building to be unoccupied. A sight that had quite a funny side to it was one we saw on the same trip. A "section" man on the railroad lived with his family in a house that was something like a bee-hive and dwelling-house combined. Bees were buzzing all around on two sides of the house, so that the children and everybody kept out of that part of the yard. There were, I think, seven swarms. What had been the pantry was covered with bees on the windows inside. One door was fastened up, because, should you open it, a hive of bees would be a foot above your head. We went upstairs to make an examination, and found bees in the windows inside. The whole place was wonderfully suggestive of a big bee-hive, and the human inmates had learned to take the matter as coolly as could be expected. We offered to pry the boards off and take the bees away; and although we left our address, and they were very willing to get rid of them, we have not heard from them to date. It may be because they think it less trouble to stand the bees, now that they have become used to them, than to write us a postal card. But we must go over and see about it, for I know they would thank us to take the bees away.

BEES IN CHIMNEYS.

Several have told us of bees coming down their chimneys, in their efforts to find a home. I once saw a hive with a comb in, placed on the top of a chimney to coax some bees out that had taken refuge there, and let the family breathe freely again, for they were not used to bees. It is often that bee-men are called upon here to remove a swarm of bees that have found a lodging in some dwelling. We keep a large strong cold chisel for that purpose.

It must be remembered that the dry climate here has given us a country without trees, except the live-oaks, in limited numbers. The bees have very little chance to start new homes in the trees, and must get into some building if they can, or take to the mountains. What cavities there are in the trees soon get filled with bees, and they are not large generally. We have got into the habit of calling small swarms "tree swarms," if we don't know where they came from. I could take you to a dozen trees with bees in, within a short mile of here. One is in an oak under which the public road to the railroad station passes. It has two small swarms. As the trees are valued for shade and ornament, it is rather difficult to get permission to cut into them.

We were rather pleased to see the swarms coming from the lowland to the highland at the base of the mountain, where our apiaries are. The black sage around us was just in bloom at swarming time, and it called the bees our way, and it seemed as though all our empty hives and boxes would catch bees. We had five or six on the horizontal limb of a large live-oak, with a cleated plank running down to a ledge of rocks near by; and I several times walked down that plank with a hive of new bees, direct from the Lord, so far as I could know. We got a few swarms also by putting some store-boxes, with old honey inside, in the trees.

So it came about in some wonderful way that a large apiary for a beginner has been built up. It seems very strange, when I stand in the midst of the eager, buzzing throng of bees, scurrying in all directions, that four short months ago I knew nothing, practically, about bees. My experience then was confined almost entirely to seeing my dear mother, years ago, when I was a child, take the old-fashioned glass-ended boxes of honey from the hives. I remember with what intense delight I watched the bees and looked at the wonderful comb filled with that nectar that every child likes so well. This feeling all came back to me, just as it was then, when I saw some hives of bees at a friend's near Los Angeles, and decided to leave the strife of the city and deal not with men so much as with these little creatures which the great God had made, and which seemed to understand him better than the mass of seeking, bargaining men in the city. It would be hard to give you a correct idea of the relief with which I turned away from the strife for existence in commercial circles in Los Angeles, to watch for a half-hour these busy workers; but busy it seemed to me in an entirely different way. I never want to forget that day. I promised God, that, if he would let me have some of those pretty bees out in the beautiful clean country, I would never try to be rich again. If you have never tried to run a race with the sharp business men of a large city, be satisfied with your bees until God calls you into some other sphere.

Since our apiary has increased so rapidly in these short months since spring, there have been several critical times. But the most critical of all was when Henry and I both got to taking credit for the success we had met. During this period, before we got this feeling driven away, I believe nothing flourished about the apiary as it did before. Distrust in each other sprang up, and we might have been foolish enough to separate had we not realized where the trouble was. How strange that we should feel so humble and so happy in beginning, and that we should come near forgetting it when success came, and so spoiling it all!

We have extracted so far, up to July 20, about 27 of the 60-lb. cans. Of the comb honey, we have had but 130 lbs. This is a small showing compared with some California apiaries, and we have at times been ambitious to have several hundred stands. But perhaps we have enough for the first year. Had we more, we should not have the time we now have to spend in the study of the Bible, which is the most delightful book of all, when understood. We learn there how man came to be out of harmony with the happy order of creation, and how to get back into place again. As you may well suppose, we enjoy this study far above bee-keeping.

When I came out into the country in California there were so many new and strange things that I felt almost like a child commencing to learn every thing over again in a new world. The wonders of the mountains, the trees, and the fruit, made a deep impression. Figs, prunes, and peaches, are now ripe. We have a long stick to poke the figs down from the trees in our yard. Apricots are about gone, but the scattering ones that are left are good. The fruit is like the peach, but the tree looks like a cherry-tree. Banana, palm, pepper, eucalyptus (or rubber-tree), and many species of the cacti, are here. Geraniums grow higher than my head, and sometimes they make hedges of them. The "daisy," that the Ohio farmers are so afraid of, grows into a tree here with wood and bark.

Sierra Madre, Cal., July 24. W. S. RITCHIE.

Friend R., like yourself I was greatly interested in the strange places that bees choose for homes in California. When I was there we found them in holes in the ground, in the dirt, and in the side of a bank; and one friend with whom I stopped was in the habit of getting a slice of honey for his dinner out of a hole in the rocks. As fast as he broke off the chunks they built more comb and put in more honey. It does me good to know that you find enjoyment just as I do, in studying God's works off alone by yourself. I like the great cities once in a while, with their crowds of human beings; but I very soon long for the quiet of my creek-bottom garden, with its beautiful little spring, and strawberry-plants with their vigorous runners ready to be trained (and almost taught what to do) by my hand. The very thought of it is restful to me; and if it were not for these enjoyments, and the restful feeling that comes to me, I do not know how I should ever bear my daily burdens and responsibilities. The man whose life is too full of business to give him time to study his Bible and to become acquainted with his God through God's works is to be pitied. I, too, poked down figs and English walnuts with a long stick. But that was in December, and you talk about figs in July. Truly one must visit California to get the hang of the many things that are so queer and strange.

FOUL BROOD.

THE FORMIC-ACID TREATMENT; THE SALICYLIC-ACID TREATMENT GENERALLY REGARDED AS A FAILURE.

Mr. Root:—As far back as 1882 I treated foul brood successfully with formic acid, being, as I believe, the first bee-keeper to use it for this purpose. At that time I had just succeeded in getting my apiary into a healthy state after a struggle of several years' duration with a most virulent form of foul brood. As I happened to have only a single foul-broody comb whereon to experiment with the formic acid, I did not feel justified in speaking or writing of it as a remedy for this destructive disease. However, in 1887 foul brood was reintroduced into my apiary from a neighbor's (in which it had been and is still rampant); and as I had a favorable opportunity of giving my new remedy a trial, no time was lost about it.

My first proceeding was to mix two teaspoonfuls of formic acid in a quart of syrup; the syrup thus acidulated was dropped on or into all brood-cells, whether diseased or healthy, twice a week, until the middle of June, when honey-storing begins in this district. An undesirable result of this rough-and-ready treatment was, that the smaller larvæ were floated out of the cells, and the loss in this way was very considerable; but every hive became healthy. To make matters sure, I fed all my bees in the autumn with acidulated syrup, the proportion of acid to each quart of syrup being doubled, or four teaspoonfuls to the quart. Although the acid flavor was very strong, the bees took it readily; and in the warm evenings, when the bees were hard at work fanning at the hive-entrances, the smell of the acid was very perceptible; and so far I can safely say an apiary was never cleared of foul brood without destroying a bee, frame, or quilt, in as short a time as in this case. I may add that a friend who keeps a dozen frame hives eradicated foul brood by the same treatment.

In regard to the trouble of using formic acid as I have described, and also the resulting loss of brood, it occurred to me to try it by pouring it into one side of a clean empty comb, which was then placed in the hive as far as possible from the entrance, and this plan of using it has proved so successful that I question whether any thing better can be devised. When used in this way, with a strong stock and warm weather, the evaporation of the acid is so rapid that the fumes, on removing the quilt, "take one's breath away" for the moment, but the bees don't seem to mind this in the least, as they cluster on and store honey in the comb containing the acid. The first thing which will strike the experienced bee-keeper on opening a hive in this condition is, that the offensive odor peculiar to foul brood has passed off; and if he examines the once foul-broody combs he will find that the bees have cleared out all the putrid matter, and that all the brood is in a condition of perfect health. A second application of the acid in this way will in most cases suffice to get a hive clear of foul brood.

As a remedy for foul brood I do not think any thing in the British Pharmacopœia is comparable to formic acid; and those who have vainly tried salicylic acid will do well to give it a trial. Curious to say, although the latter has been pronounced a failure by every intelligent bee-keeper who has tried it, it is still mentioned as a remedy in some of the bee-books published in England. For myself, judging from its high evaporating point and comparative insolubility, I do not and never did believe it possible to cure foul brood with it. On the other hand, formic acid evaporates rapidly at ordinary atmospheric temperatures, and so it is brought into the closest possible contact with every part of the interior of the hive and every part of every cell, grub, and bee, it contains. Having no offensive odor, it can be used while honey is being stored, without the slightest fear of tainting it; and, although last, not least, it is not expensive, a bottle containing 1 lb. costing about two shillings and nine pence, or less than 75 cents in American money.

The formic acid I use is known chemically as a 10-per-cent solution of anhydrous formic acid, and its specific gravity is 1.06. Bee-keepers should be careful about this, because absolute formic acid is not only expensive, but it is very dangerous to handle, the least drop of it causing very painful ulcerous sores. In fact, any solution stronger than that given above is undesirable, as it has a solvent action on the beeswax in the combs, although, strange to say, it does not affect paraffine wax.

Foul brood is rapidly becoming a serious pest, both here and in England; and if its progress is not checked it will certainly put an end to bee-keeping in these countries. This is, in my opinion, largely the fault of the bee-keepers themselves; as, when it makes its appearance, instead of trying for a remedy they regard it with a sort of Mohammedan fatalism, as something against which there is no use in striving.

In conclusion I wish to point out that, to make an experiment on the lines I have given, will cost very little money, and not more than five minutes' time; and if the necessary conditions (a strong hive and

warm weather) are present, I guarantee its complete success. ROBERT SPROULE.

Fairview, Ireland, July 5, 1890.

We are glad, friend S., if formic acid will prove to be a germicide for foul brood. We are pretty sure from our own experience, and from reports that have passed our eyes, that salicylic acid is about so much time wasted; and the same is almost equally true of carbolic acid, or, as it is sometimes termed, phenol, in its pure forms. It would be valuable, however, if an acid could be discovered that would kill the germs of the disease, or, better still, prevent infection in healthy colonies, in apiaries where the disease exists or has existed. After all, we feel like cautioning our friends about fussing very much with acids. Let scientists, and those who can afford it, demonstrate whether formic acid is superior to carbolic and salicylic acid. Putting bees into clean hives, and compelling them to build out foundation, is an *absolute* and *sure* remedy.

WEIGHT OF SECTIONS.

MRS. HARRISON ALSO TELLS US SOMETHING ABOUT HER ENJOYMENTS.

I ASKED a groceryman last fall, who had a fine store, well stocked, and apparently considerable trade, if he wanted to purchase some honey. He replied, asking, "What condition is it?"

I said, "White clover, in one-pound sections."

He said, "What do they weigh?"

"Most of them one pound," I said. "I weighed a number of them to-day, and they were straight up and down, exactly one pound."

He replied, "I bought a lot lately that weighed a trifle over three-quarters of a pound, and that is about the weight I like. I bought them by the pound, and sell them by the piece."

I interviewed a couple of grocerymen lately, who deal exclusively in the best goods the market affords, with reference to the weight of sections. They both replied in substance as follows:

"I want them to weigh as nearly one pound as possible, not overweight, for then I lose, as I buy by the pound. In all large markets there will probably be some persons who will prefer to buy sections of light weight; but those who do a straight business will want those of full weight. Those who prefer the light weights are the kind of persons who claim to sell more pounds of sugar for a dollar than other dealers; but when you get it home and weigh it you find they have forgotten to put in the extra weight."

RECREATION.

Yesterday I baked, and made the necessary preparations to go to-day on an excursion up the river on a boat, with the Sunday-school; but circumstances beyond my control kept me at home, so I have a change by writing in the shade of a tree. Idleness is no recreation for me. As a pastime I am raising cuttings from roses, starting them in a crock of sand which I keep upon the top of a hive, in the hot sun. The sand is kept wet all the time, but no water is allowed to stand on the surface. They are putting forth new leaves now, which shows that little white roots are starting. In a few days I will put them into little pots filled with rich soil, which I will put into a box of sand, which will be kept damp to keep them from drying out, and will exchange for larger ones as soon as their growth demands it. I save all the paper bags for various uses, and utilize all of the smaller ones to pin over nice bunches of grapes, to keep them secure from insects and birds.

It is recreation for me to study the Sabbath-school lesson in company with many millions of fellow-Christians throughout the world. The last few weeks we have been accompanying the Master in that last sad journey toward Jerusalem.

Peoria, Ill., July 22. MRS. L. HARRISON.

Why, my good friend Mrs. H., I think ever so much more of you than I ever have before, and that is saying quite a good deal. So you really love to see things grow, as your old friend A. I. Root does. If you ever see Dr. Miller again, you just commence talking roses to him. We have a rose-garden too—a little one. Dr. Miller sent us the plants; and I tell you it is just fun to see them put out their bright new leaves, and to see them push out their little white roots. Starting things in sand always had a special delight for me. The sand is so clean, and keeping it of just the right degree of wetness during hot summer days, has a special fascination about it. There is a real inspiration in your last paragraph. It did not occur to me before, that, when we are lovingly studying and striving to follow the Master, we are really joining the ranks with *millions* of fellow-travelers. And the grandest thought of all is, that these fellow-travelers are also fellow-*Christians*.

BAD BOYS, AND WHY.

A FEW WORDS TO THE GLEANINGS BOYS, FROM MRS. J. HILTON.

Mr. Root:—A remark was made to me the other day that I want to speak to the GLEANINGS boys about. The remark was, "Charley J. has gone crazy, and has been sent to the insane asylum."

I could hardly believe my informant, because that same Charley was a young man we had often spoken about as being such an unusually good-appearing young fellow, in spite of the fact that he never went to Sunday-school or church, nor even to the merry-makings of the young folks. But it was proved to me that he was crazy, and, saddest of all, that the cause of his insanity was impure thoughts. Never going to Sunday-school or church, and rarely associating with Christian people, his thoughts were otherwise occupied. The old quotation, "Satan finds some mischief still for idle hands to do," should also read, "Satan finds *more* mischief still for idle *minds* to do." Dear boys, you who think it is so tiresome of mother to be so sharp after a fellow if he is not on hand to go to Sunday-school or church, they know what mischief may get into those busy, active brains, if they are not kept in the straight way; and while you are learning about God and his wishes you are not only well occupied at the time, but you are learning things that will help you when mother and father are not by to help you. Be thankful that you have some one who is anxious as to what you are doing, and pray that you may never, never feel like saying to your parents what one poor boy did whose mother always let him do as he wanted to in every thing, because

she felt it so hard a thing to vex her boy. He was doomed to death for some misdeed, and his mother went to see him in the prison; but he would not look at her, but told her that it was all her fault that he was where he was; that if she had *made* him go to church and other good places he would not have learned so much evil and so little good. Mr. Root tells us that he has 10,000 subscribers, and that represents 10,000 boys or more. Just think what an army of you there is! I always loved the boys, even when I was a little girl, and my love has not cooled, only grown more desirous for your good, and anxious that you should make good wise men, men whom we can point to and say, "*There* goes a Christian." Have you thought what that means? It means temperance men, honest men, loving, generous, thoughtful, earnest, working human beings; and it means that, although your life may be so full of work and care that it seems as though you could not do another thing, yet as God's bounty to us is like a bucket filled and running over, so even your full life may have the edges so lowered that considerable may run over to help those outside of your individual bucket, blessing not only them but yourselves in the doing. MRS. J. HILTON.

Los Alamos, Cal., July 13.

My good friend Mrs. H., I most heartily indorse every word you have said; and I can think of no more fitting closing words than the beautiful text that all the world admire so much, whether they practice it or not: "Blessed are the pure in heart, for they shall see God."

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

In order to read understandingly the reports given below, it will be necessary to observe the following points: First, the State is given; then next in their order are the names of the reporters, with their respective postoffices. To indicate locality, the usual abbreviations are used—N., S., E., and W., for north, south, east, and west; N. E. for north-east, etc. The letter C indicates the word "central;" E. C., east central, etc. In the following list, the first figure represents the month, and the second figure the date at which the report was rendered. The small letters, a, b, c, d, etc., indicate the answers to the questions propounded in questions a, b, c, etc., just below.

On the 18th of July we prepared the following circular letter and sent it out to our statistical reporters:

Dear Sir:—It is a little early yet for many localities to render a definite report of the honey crop for the year; but it is highly important that we should know the prospects, and the probable honey yield, that we may better determine when and at what price to move off our crop.

a. What are the prospects for an average crop of honey this season?

b. What is your average yield in surplus, so far, per colony?

The replies received are as follows:

ALABAMA.

J. M. Jenkins, Wetumpka. C. 7-21.
a. None at all; b. 00.000 lbs. per colony.

W. P. W. Duke, Nettleborough. S. 7-29.
a. About 100; b. 85 to 90.

ARIZONA.

Jno. L. Gregg, Tempe. C. 7-24.
a. Good; b. about 90 lbs.

CALIFORNIA.

R. Wilkin, San Buenaventura. S. W. 7-25.
a. The season is over; 70 lbs. I count an average crop per hive here. b. The average for this season is about 45 lbs. per hive. The quality averages very fine.

Wm. Muth-Rasmussen, Independence. E. 7-25.
a. Excellent; b. about 60 lbs.

W. W. Bliss, Duarte. S. E. 7-24.
a. Very good; b. 200 lbs. comb honey.

G. W. Cover, Downieville. N. 7-26.
a. Good; b. 24 lbs.

J. P. Israel, Olivenhain, Cal. S. 7-26.
a. There is only half a crop in southern California. The season is ended; b. about 40 lbs.

COLORADO.

Mark W. Moe, Denver. C. 7-26.
a. Fair to good; b. as I have considerable honey on the hives ready to take off, it would be impossible to tell.

CONNECTICUT.

Daniel H. Johnson, Danielsonville. E. 7-22.
a. Not very good, but better than last year; b. can not average for the whole. If we count them all, the average would be about three.

Lewis Sperry, Hartford. 7-21.
a. Not very good; b. about 15 lbs.

FLORIDA.

J. L. Clark, Appalachicola. W. 7 24.
a. Nearly a total failure in this section.

GEORGIA.

T. E. Hanbury, Atlanta. N. 7-22.
a. Poor; b. 20 lbs.

J. P. H. Brown, Augusta. E. C. 7 22.
a. Prospects for an average crop are very poor; b. about 25 lbs.

R. H. Campbell, Madison. 7-23.
a. As slim as ever I saw it for the past 25 years; b. some colonies have starved. I could not have taken 10 lbs. from my 80 colonies during the whole season.

Walter McWilliams, Griffin. W. C. 7-26.
a. The spring crop is a total failure; b. could have extracted about 12 lbs., but reserved it to feed.

ILLINOIS.

C. C. Miller, Marengo. N. 7-21.
a. Very poor; b. at a rough guess, 12 lbs.

Mrs. L. Harrison, Peoria. W. C. 7-21.
a. The prospects for a total failure are good; b. with the exception of a very few colonies, which will run from 10 to 20 lbs., the surplus is nothing.

C. Dadant, Hamilton. N. W. 7-21.
a. Not good; b. 10 lbs. Too cold and too wet in early spring, and too dry now.

A. B. Goodrich, Bloomington. C. 7-22.
a. Prospects for honey this season less than 50 per cent of average crop. b. My yield in surplus to date is less than 5 lbs. to colony.

Reuben Havens, Onarga. E. 8-4.
a. Very poor; b. not to exceed 10 lbs.

IOWA.

Eugene Secor, Forest City. N. 7-21.
a. The poorest for several years; no white honey to speak of. Not 10 lbs. per colony; b. not to exceed 10 lbs.

J. W. Bittenbender, Knoxville. S. E. 7-25.
a. All dried up; b. 0.

Oliver Foster, Mt. Vernon. E. 7-21.
a. No prospect; b. none taken; perhaps 15 lbs.

A. Christie, Smithland. W. 7-22.
a. Fair; b. about 40 lbs.

INDIANA.

Mrs. A. F. Proper, Portland. E. C. 7-26.
a. Good; b. about 50 lbs.

I. R. Good, Vawter Park. N. W. 7-25.
The honey crop is a failure in this part of the country.

KANSAS.

B. F. Uhl, Boling. 7-23.
a. Not good; too dry; b. 24 lbs.

Frank H. Howard, Garden City. 7-26.
a. Good, if the grasshoppers let the alfalfa alone; b. 50 lbs., half comb and half extracted.

J. B. Kline, Topeka. E. C. 7-29.
a. Poor; b. not any.

KENTUCKY.

D. F. Savage, Hopkinsville. S. W. 7-24.
a. Early crop unusually large; b. 50 lbs.

J. P. Moore, Morgan. N. 7-22.
a. The drouth has brought the season to a close; b. 180 lbs.

Jno. S. Reese, Winchester. C. 7 21.
a. Above the average; b. 75 lbs.; season ended.

LOUISIANA.

J. W. K. Shaw, Loreauville. S. C. 7-22.
a. Poor; b. no surplus yet.

St. Julien T. Moore, Monroe. N. C. 7-23.
a. Honey crop late, but hives filling rapidly now; b. from 90 hives, extracted, average 30 lbs.

MAINE.

John Reynolds, Clinton. S. E. 7-24.
a. Very poor; b. crop not off yet. I should judge less than half a crop.

C. W. Costellow, Waterboro. S. W. 7 21.
a. Good; b. 33 lbs.

MARYLAND.

Simon P. Roddy, Mechanicstown. 7-23.
a. Poor; b. 10 lbs.

S. Valentine, Hagarstown. 7 26.
a. Not very good; b. about 25 lbs.

MASSACHUSETTS.

A. A. Sanborn, Westfield, Mass. S. W. 7-25.
a. Poor; b. I don't know.

E. W. Lund, Baldwinsville. N. C. 7-23.
a. Good to date; b. 25 lbs.

Wm. W. Cary, Colerain. N. W. 7-21.
a. Prospect poor; b. about 20 lbs.

MICHIGAN.

George E. Hilton, Fremont. W. 7-22.
a. Never so poor; b. not to exceed 1 lb.

A. J. Cook, Lansing. C. 7-21.
a. The crop of light honey is almost a total failure; b. I can't say, but I don't think it is 20 lbs. I doubt whether it is 10.

James Heddon, Dowagiac. S. W. 7-24.
a. For this part of Michigan, I think the surplus crop is not over 35 per cent; b. not to exceed 35 per cent of our average yield so far; and now the drouth upon us makes our prospects for fall crop look poor indeed.

H. D. Cutting, Clinton. S. E. 7-21.
a. The poorest in several years; b. I have not taken any off; but from present indications, about 15.

R. L. Taylor. Lapeer. 7-22.
a. An indelible blank; b. 0. White clover and basswood have been a total failure.

MINNESOTA.

W. Urie, Minneapolis. E. C. 7-24.
a. I have not one pound of white honey made in boxes, and very little extracted. About the same report all over the State. Up to date, the poorest season for the past ten years; prospect good for a fair crop of dark honey; there will be no white comb honey, so far as I can learn, in the State.

A. F. Bright, Mazeppa. E. 7-25.
a. No prospects whatever; b. not a pound.

N. P. Aspinwall, Harrison. C. 7 22.
a. Good with me; b. none taken; too early.

D. P. Lister, Lac Qui Parle. W. C. 7-23.
a. Good; b. 20 lbs.

MISSISSIPPI.

Jas. M. Lewis, Osyka, Miss. E. 7 23.
a. The prospect for an average crop is very poor, owing to so much rain. The honey is very poor; b. about 45 lbs.

MISSOURI.

E. M. Hayhurst, Kansas City. W. 7-26.
a. Half a crop; b. 35 lbs. comb honey.

Chas. L. Gough, Rock Spring. E. C. 7-24.
a. None at all; b. 12.

S. E. Miller, Bluffton. E. C. 7-21.
a. Very poor; b. extracted, 20 lbs. Comb not worth mentioning.

James Parshall, Skidmore. N. W. 7-21.
a. The prospects are bad; b. we may get about 25 lbs.

Jno. Nebel & Son, High Hill. E. C. 7-21.
a. Prospects to date have been poor; good, though, for an average fall crop from Spanish-needle bloom; b. not more than 5 lbs. per colony.

NEBRASKA.

J. W. Porter, Ponca. N. E. 7-21.
a. Very poor; b. about 20 lbs.

J. M. Young, Plattsmouth. 7-21.
a. The prospect for a fall harvest is good; plenty of rain now; b. I can not give any definite result.

F. Kingsley, Hebron. S. C. 7-21.
a. Good; b. our surplus flow begins in August.

Jerome Wiltse, Falls City. 7-22.
a. The prospects are poor; b. nothing.

NEVADA.

E. A. Moore, Reno. W. C. 7 23.
a. Very good; b. about 50 lbs.

NEW HAMPSHIRE.

S. F. Reed, No. Dorchester. C. 7-28.
a. Very poor so far; b. about 25 lbs.

C. E. Watts, Rumney. C. 7-26.
a. Fair; b. have taken but little so far.

NEW JERSEY.

Watson Allen, Bernardsville. N. C. 7-24.
a. The prospect is not good; b. about 12 lbs.

J. D. Coles, Woodstown. S. W. 7-21.
a. Good; b. 20 lbs.

NEW YORK.

H. P. Langdon, East Constable. N. E. 7-25.
a. Poor, at 150 per cent increase; b. none.

G. H. Knickerbocker, Pine Plains. 7-25.
a. Not more than ¼ to ½ a crop in this part of the State; b. not to exceed 25 lbs.

F. Boomhower, Gallupville. E. C. 7-22.
a. Very poor; b. 0.

G. M. Doolittle, Borodino. C. 7-21.
a. Poor; b. not any. Basswood is in full bloom, but it is so cold, cloudy, and windy that the bees can not work.

NORTH CAROLINA.

Abbott L. Swinson, Goldsboro. E. 7-29.
a. Poor indeed; b. none.

OHIO

A. B. Mason, Auburndale. N. W. 7-23.
a. Poor; b. about 20 lbs., extracted.

Chas. F. Muth, Cincinnati. S. W. 7-24.
a. The honey harvest was below medium in southern Ohio and Indiana, as far as it has come under my observation; b. I don't think that the average yield per colony was 25 lbs. of honey. My own average was not quite 15 lbs. of extracted honey.

S. A. Dyke. Pomeroy. O. 7-26.
a. Very poor; b. 23 colonies, surplus 60 lbs.

Dr. G. L. Tinker, New Philadelphia. N. E. 7-19.
a. Not favorable; b. of extracted and comb honey together, about 25 lbs.

Dr. H. Besse, Delaware. C. 7 23.
a. It has the appearance of being good; b. about 25 lbs.

OREGON.

George Ebell, Baker City. E. 7-26.
My bees all died last winter.

PENNSYLVANIA.

Thos. C. Davis, Pittsburgh. C. 7-25.
a. Prospects are not good; b. about 25 lbs.

Geo. A. Wright, Glenwood. N. E. 7-26.
a. Total failure; b. 5 lbs. 5 oz. from 130 colonies.

J. P. Watts, Murray. C. 7-22.
a. Poor; b. nothing.

S. W. Morrison, Oxford. S. E. 7-21.
a. Our honey season is over; b. about 50 lbs. comb, or 80 lbs extracted.

A. A. Harrison, McLane. N. W. 7-25.
Worse and worse. Basswood is gone. I may get 200 lbs. white honey from 80 good colonies. June 15, only 16 had swarmed.

RHODE ISLAND.

A. C. Miller, Providence. E. 7-24.
a. Crop so far is above the average; b. about 50 lbs.

SOUTH CAROLINA.

J. D. Fooshe, Coronaca. 7-21.
a. Poor; b. no surplus.

W. J. Ellison, Stateburg. C. 7-22.
a. Poorest for many years; b. about 15 lbs.

H. T. Cook, Greenville. 7-26.
a. Very poor; b. 0.

TENNESSEE.

W. H. Greer, Paris. N. W. 7-21.
a. Poor; b. 20 lbs.

TEXAS.

L. Stachelhausen, Selma. S. C. 7-22.
a. Not good; about 25 per cent; b. 20 lbs.

B. F. Carroll, Blooming Grove. 7-24.
a. Prospects good for August, for cotton; b. horsemint all plowed up, hence no more mint honey near me.

J. E. Lay, Hallettsville. S. W. 7-20.
a. Bad; too wet in May and June; b. 20 lbs.

VERMONT.

A. E. Manum, Bristol. W. 7-22.
a. Poor; b. not over 8 lbs., and season ended.

F. M. Wright. Enosburgh. E. 7-25.
a. Very poor; b. no surplus as yet.

Howard J. Smith, Richford. N. C. 7-23.
a. Poor; b. 25.

J. E. Crane, Middlebury. W. 7-20.
a. Half an average; b. 20 lbs.

VIRGINIA.

J. W. Porter, Charlottesville. C. 5-24.
a. Fair average crop; b. can not report.

H. W. Bass, Front Royal. N. 7-25.
a. About two-fifths of an average crop; b. 20 lbs. comb.

WASHINGTON.

W. W. Maltby, Port Angeles. 7-25.
a. Medium; b. 60 lbs.

J. H. Goe, Mossy Rock. 7-24.
a. Good; b. 40 lbs., comb.

WEST VIRGINIA.

J. A. Buchanan, Holliday's Cove. N. 7-22.
a. Away below an average crop; b. 25 lbs.

Will Thatcher, Martinsburg. W. C. 7-21.
a. Good; b. 60 lbs.

Jno. C. Capehart, St. Albans. S. W. 7-20.
a. Of late years I am in the habit of expecting the bulk of it in November; b; I squeezed 40 lbs. from the clover yield.

M. A. Kelley, Milton. S. W. 7-21.
a. Good; b. 27½ lbs.

WISCONSIN.

Frank McNay, Mauston. C. 7-25.
a. Very poor; b. 0.

J. C. Sayles, Hartford. S. E. 7-19.
a. Very poor; b. not more than 10 to 15 lbs.

S. I. Freeborn, Ithaca. S. W. 7-25.
a. Very poor; b. 20.

Joshua Bull, Seymour. E. 7-23.
a. Very poor for white honey; not more than half a crop; b. I have not yet removed any from the hives.

E. France, Platteville. S. W. 7-22.
a. Very poor; b. 4½ lbs.

With very few exceptions, as we stated in our last issue, the prospects are poor, and the average yield per colony is excedingly moderate. But as the reports were sent out a little early, as indicated in the circular letter above, it is not impossible that things will brighten up a little, even yet. In fact, as stated in the last issue, white clover seems to be hanging on in some localities, where it was expected that the yield from that source had entirely ceased. California looms up with a large crop of honey, and that means a good deal, for this State pro-

duces not a small percentage of all the honey produced in the United States. Colorado has one reporter, and he says, "Fair to good." Arizona, the State where alfalfa is produced, reports about 90 lbs. per colony. Minnesota does not seem to be uniform. In the east-central and eastern part of the State there is but very little honey; but in the central and west-central parts, the yield seems to have been good. Wisconsin, another usually good State, has also no honey of any account. Indiana, California, Arizona, Virginia, West Virginia, and Washington, report the prospects good. Almost all the rest of the States are reported poor.

If any one thinks GLEANINGS is puffing up the industry, and showing only the silver lining to the cloud, let him read the Reports Discouraging in the August 1st and present issues, and then take a glance at the Honey Statistics. As we said before, fruits will be rather scarce, and the bee-keeper has not fared any worse than many of those engaged in kindred industries.

A CHAPTER ON WASPS, ETC.

PROF. COOK TELLS US ALSO ABOUT LOCUSTS, KATYDIDS, ETC.

I HAVE just received a most beautiful wasp from H. H. Hillier, Passadena, Cal. It is a deep rich blue, with red wings. It is a digger wasp. It digs a hole in the earth, swoops down on a tarantula or other victim, stings it with its murderous sting, then bears it away to its hole. It now places an egg in its victim, and buries it. The spider is not dead, but only paralyzed; so when the egg hatches, the young, or baby wasp, has not only fresh but living food on which to break its fast. Mr. K. says they call it the tarantula-hawk. In Texas a similar wasp is called tarantula-killer. Smaller species are common here and in Ohio. While these wasps sting with powerful effect, yet I do not suppose the effect of the sting is ever likely to be fatal. These are very quick, have very hard bodies, and rarely sting one if left undisturbed. This one is very large. I am glad to get it. I should like to get many California insects.

WASPS AND BUGS.

Mr. Edward J. Knebel, Spring Branch, Texas, asks if I will describe in GLEANINGS some wasps sent by him from Texas. These are paper making wasps. They look like our *Polistes Annularis*, so common in houses in late fall and early spring. Like all of this family—*Sespedæ*—they have a longitudinal fold or a way of doubling up their front wings when at rest. We often boast of our attainments, and sneer at insects; but these wasps have built their large paper nests of wood pulp for scores—may be hundreds of years, while we have just "caught on to that trick." Like the digger and all other wasps, these insects people their cells with other insects on which the larval wasps subsist. I have often seen wasps catch and kill currant-worms, tent-caterpillars, etc. Wasps do us much good in killing our noxious insects, and do no harm except in the use of their stings, and very seldom this unless provoked to it.

CALIFORNIA COW-KILLER.

I have received an ant-like insect from J. G. Gilstrop, Hanford, Tulare Co., Cal., which is covered with thick hair, which is of a rich carmine color. The legs and antennæ are black. The insect is very pretty. Mr. G. says, "I suppose it is a spider." He adds further, "It is rumored that it is very poisonous. Please name it in GLEANINGS."

This is one of the cow-killers. I have one illustrated in "Bee-keepers' Guide," p. 427, Fig. 216. These belong to the family *Mutilidæ*, so called, I think, because neither males nor females have wings. They are said to have a powerful sting. Possibly this is why they have taken the name of cow-killers in the South, where they are quite common. They are closely related to the ants, which they resemble not a little. In the South they kill bees. This one is a little smaller than the one that is called a bee-killer, which I have received from several Southern States. Has Mr. G. ever known of this one killing bees? This insect is very handsome, I am very glad to get it.

The larger bees with light bands and large yellow hind legs, received from Jno. Longwood, Highland, Minn., are *Melissodes Pennsylvanica*. The hairy hind legs are used to carry pollen. These bees dig holes in the ground, and put in pollen and honey, may be, as they have long tongues, and lay their eggs in this food. Thus the brood matures in earthen instead of wax cells. These bees are very handsome; and though I had them in our collection before, I am glad to get them from Minnesota. I thank Mr. L. for them.

THE COMMON CICADA (*C. tibicen*).

I have received from Mr. K. F. Beach, Olean, N. Y., a specimen of our common cicada (*C. tibicen*), with the request that I name it through GLEANINGS. This fly is just the form and about the size of the seventeen-year cicada—often called, incorrectly, seventeen-year locust. This, however, has green veins to the wings instead of red. It is probable that the seventeen-year cicada exists so long as a larva, from the habit of burrowing deeply in the ground. A taste which would make such a home pleasing would place the insect below danger, but would delay development, as both warmth and food would be too scarce for rapid development. Our common cicada, *tibicen*, I presume lives nearer the surface, and so develops, presumably, in a year. The song (?) of the male cicada is very familiar. It is the long, shrill, high-pitched rattle-like whir, heard all through the day every few minutes in July and August. Except for its higher pitch, it is strikingly like the whir of the angry rattlesnake, as I have often noticed this summer, as our rattlesnakes and the cicadæ in the oaks, just out my window, were running opposition. It is not easy to find the cicadæ, even when we hear their song, as they usually stop their noise upon our approach. Yet the other day I found one so entranced with its own music that I approached, caught it, and yet it continued its song for some time after I had it secure in my grasp. The seventeen-year cicada often come forth from the earth in multitudes, and make all outdoors clamorous with its high-pitched notes. The only harm that comes from the cicadæ is in the unskillful pruning they do in egg-laying. They cut into fruit and forest trees to lay their eggs, and often do great harm. I have seen orchards that looked as though they might have been burned, so thick were the weathered leaves on the wounded twigs. As the eggs hatch, the larva falls to the ground, which it enters, and in its cold dark home feeds daintily on roots, may be, for near seventeen years. When nearly matured it changes to brown,

active pupa, which at last comes forth, crawls up some twig or tree, splits open on the back, and the beautiful mature cicada goes forth to enjoy its nuptials with song and merry-making.

Agricultural College, Aug. 6. A. J. COOK.

THE RATTLESNAKE THE EMBLEM OF A NATION.

SOME OF ITS PECULIARITIES; BY ONE WHO HAS SLAIN OVER 1100 OF THE REPTILES IN ONE SEASON.

I SEE in GLEANINGS of July 15 that Prof. Cook is delighted with his pet rattlesnakes, and wishes all of the readers of GLEANINGS could walk into his laboratory and take a peep at them. I have, perhaps, killed as many of these "varmints" as the average western man, having herded cattle in a very early day on the wide wild prairies of Central Illinois and Iowa. As my diary shows, I actually killed in one season 1100, having destroyed as many as 33 in one day. They were of the small prairie variety, but still they were poisonous, and would often bite the steers.

I wonder how many of the readers of GLEANINGS know that this reptile was at one time placed upon the flag of the nation The great union flag of Great Britain was brought by the colonists to America; and when the thirteen colonies began to feel the pressure of British rule they placed upon their banner a rattlesnake, cut in thirteen pieces, representing the thirteen colonies, with the words, "Join or die." But when the thirteen colonies became more united in their purpose of resistance to British tyranny they placed upon their banner a large well-formed rattlesnake in the attitude of one about to strike, with these words: "Don't tread on me." The rattlesnake is truly an American "bird," found only on this continent; and how fitting the choice for an emblem! In many countries the serpent is considered as an emblem of wisdom, and, in some attidudes, of endless duration. Its eye is exceedingly bright, and without eyelids—an emblem of vigilance, and it never begins an attack; and it never surrenders, which is an emblem of magnanimity and courage. It never wounds even its enemies, till it generously gives them warning not to tread on it, which is emblematical of the spirit of the people who inhabit this country. It appears weak and defenseless; but its weapons are nevertheless formidable. Its poison is the necessary means for the digestion of its food, but certain destruction to its enemies, showing the power of American resources. Its thirteen rattles, the only part which increases in number, are distinct from each other, and yet so united that they can not be disconnected without breaking them to pieces, showing the impossibility of an American republic of the original thirteen without a union of States. A single rattle will give no sound alone; but the ringing of the thirteen together is sufficient to startle the boldest man alive. It is beautiful in youth, which increases with age. Its tongue is forked like the lightning, and its abode is among the impenetrable rocks.

This description has reference to the large mountain rattlesnake, which was known only to the Eastern people. They are many times larger in body. You can hear the sound of the rattling to a greater distance than the small Western prairie rattlesnake. Perhaps when Prof. Cook gives the article he has promised he will tell us more about the little pets.

A GOOD MANY CRATES READY TO COME OFF.

My bees are doing fairly well. It has been almost too dry and cool a part of the time. Some late showers have started up the white clover afresh, and the bees are still at work. I have a good many crates just ready to come off. I have taken some new honey. I have had more trouble from robbers than ever before. I live near the big timber. I have thought the robbers came from there. I had two swarms come to me from there, I suppose.

Atwood, Ill., July 20. J. W. C. GRAY.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE DETROIT EXPOSITION.

The following is a copy of a little slip written by H. D. Cutting, and which we take pleasure in presenting to our subscribers:

I should like to call the attention of all bee-keepers to this fact: It being an extra poor season for honey, an extra exertion must be made to secure a good attendance of exhibitors.

The Exposition Company have granted every thing we have asked for—given us an extra space to show our products, the largest premium list ever offered in this country for this department, also an expert judge with a "world-wide reputation." If we do not make a good exhibit, and fill the space allotted to us, next year the list will be reduced. They have been very liberal with us, with the expectation that we are to make a large, fine, and attractive exhibit.

Now, fellow bee keepers, do not let this be a failure, but show the people that, in the face of a crop failure, we can and will sustain the good reputation already formed, and make this a fine and attractive exhibit. If you do find it impossible to be present, and have any thing pertaining to this department that you wished placed on exhibition, you can send it by express, charges prepaid, to H. D. Cutting, Superintendent of the Bee and Honey Department, Detroit, Mich. It will be delivered to me in the building, when it will receive good care, and be placed on exhibition. Also send me instructions what to do with articles at the close of the exhibit.

Mr. W. Z. Hutchinson, of the *Review*, has suggested that all bee-keepers intending to visit the Exposition, meet "just after the judging" on the first week, and visit the Exposition in a body. You will be received by a committee at the bee-keepers' headquarters, and shown over the buildings and grounds, taking in all objects of interest. Please be with us as visitors, if you can not come as exhibitors. Bee-keepers' day will be Friday, Aug. 29.

H. D. CUTTING.

We trust that the Detroit Exposition may not be lacking in a honey display, even if, as friend Cutting says, the season has been extra poor.

HOW BEES BRUSH THEIR EYES.

Mr. Root:—In watching my bees I have noticed that every one, when leaving the hive, rubs its fore legs over the head, and so on down over the horns, or feelers. The old ones will perhaps give only one brush over, but the young bees will stand and rub for a minute at a time, the drones also doing considerable in the same hive. I should like to know if any one can tell the reason for this, as it is evidently for some purpose, as the Creator never made any thing in vain. E. W. HOWES, M. D.

Chatham, N. Y., July 28, 1890.

We referred the matter to Prof. Cook, who replies:

E. W. Howes, M. D., wishes to know why all the bees rub their heads and antennæ with their fore legs as they come out of the hive before taking flight. It is to dust their eyes and antennæ, or "horns." Their eyes are for light, their antennæ for smell, and both must needs be clean. Hence the bees brush the eyes and dust the antennæ by use of the antennæ-cleaners. Dr. Howes can easily see that this is true by putting a bee or wasp on the window, and dropping some dust from the road, or fine chalk or flour, on the antennæ. He will see the bees use the curious antennæ-cleaners to clean the antennæ, and then the middle legs to clean the cleaners, in case it is a bee, or the jaws to do the same in case it is a wasp. The antennæ-cleaners on the front legs, described and beautifully illustrated in my book, are wonderful organs. A hollow, bearing a delicate fringe of hairs, and a duster with very fine membrane, together grasp and draw over the leg. A more beautiful and effective organ it is hard to find. A. J. Cook.

Agricultural College, Mich.

A BIG TESTIMONIAL IN FAVOR OF THE NEW THICK TOP-BARS.

Well, Uncle Amos, the queens are doing well. One of them has proved to be an extra layer, but the other has had no chance on account of the large flow of basswood nectar, which is at this writing in full blast. It blossomed so the bees worked on some trees July 13, and it is coming in so fast that they do not stop to build comb in the sections, but cram the brood-combs full in some colonies, which is the case with one that I introduced one of the queens to July 13.

Well, I am one, perhaps, of the many who are trying the heavy top-bars, and the exact spacing I do by the use of the furniture-nails. I have 29 stocks so arranged, and am experimenting on 3 other styles and widths of top bars on 18 different stocks, and so far I am well pleased with heavy top-bars spaced $\frac{5}{16}$, or, rather, a space between frames $\frac{5}{16}$ of an inch. I have just looked them over, and I do not find any signs of burr-combs except on two hives, and there is only a little on them. On some of my Simplicity hives with thin top-bars they have got the zinc honey-board plastered nearly full, and I tore it off and scraped off a *quart* of burr-combs. I like the slatted wood break-joint honey-board better than the zinc ones, but I am greatly in hopes that, with my new hive, I shall be able to discard them altogether. The heavy top bar that I speak of is $\frac{5}{16}$ thick and $\frac{7}{8}$ wide, and is used with my new chaff hive, which suits me better than any other hive I ever saw. Fred C. Smith.

Thanks for your valuable testimony. Our experience with the heavy bars has been so far exceedingly satisfactory. Did you notice, friend S., whether the colonies with *thick* top-bars stored *less* honey than the colonies with thin bars?

WHY HIVES SHOULD BE PAINTED; A GOOD ILLUSTRATION.

I have been waiting for some one to haul one of your contributors over the coals for asserting that paint does not protect wood (hives) from decay. You let him down easily by not noticing it editorially. Now, paint does protect wood by excluding moisture; and when white lead is used, the surface is hardened against the wearing effect of wind and rain. Over the old aqueduct bridge in Georgetown, D. C., is a sign board over fifty years old. The old board seems never to have been painted. The bridge regulations are painted in large black letters. The face of this board (4 x 6) is so worn away by the action of the weather that the words seem to have been carved in relief, and a blind man could read by the sense of touch those raised letters which the black paint has preserved. The face of the board has left them at least a sixteenth of an inch high. Arthur T. Goldsborough.

Washington, D. C., May 28.

WHAT SORT OF PUMP IS BEST, FROM A SANITARY POINT OF VIEW?

Is a bucket pump, with buckets on that will hold a pint or more, better for the water in a cistern than the common chain pump with rubber buckets? The claim made for the former is, that the buckets carry air to the bottom of the cistern, and purify the water. E. E. Lawson.

Stanberry, Mo., Aug. 7.

Friend L., I do not think the kind of pump you describe has much, if any, advantage over the chain pump. The theory that carrying the air under the water makes the water more wholesome, came from the vender of a certain kind of pump; but I hardly believe it is supported by true science. Very likely the water of the cistern will be better where there is considerable agitation, as this will disturb the settlings and tend to keep them pumped out. We have had very fine cistern water during the past summer, that has been used all through the factory, in preference to any of the well-water, for drinking purposes. But this cistern water is drawn through a tin-lined lead pipe, the pipe being tinned both inside and outside; but in order to prevent settlings from getting in, the end of the pipe is turned up so as to take water a couple of feet above the bottom of the cistern. The cistern has, however, a chain pump also, out of doors. The chain pump goes lower down than the other, and is used often enough to keep the water agitated and "aerated," as the patent-pump man would term it.

A GOOD REPORT FOR THE NOVICE EXTRACTOR.

Seeing a notice in Gleanings, August 1, of the work done by T. H. Mills, of Cameron, Tex., with a Stanley extractor, I will state what I did for F. McNay, of Mauston, on August 10, 1889. With a Novice extractor I extracted 60 gallons of honey, hived eight swarms of bees, and did it all alone, and went seven miles to town before sundown.

Mauston, Wis., Aug. 6. E. W. Prosser.

Pretty well, friend P., only we should prefer to have the amount of honey stated in *pounds* rather than in *gallons*. If it is good thick honey, however, we can safely estimate 11 lbs. to the gallon. I wonder if you didn't leave things scattered around some that night.

THAT FRACAS IN OUR OWN APIARY; DOES IT PAY TO KEEP CROSS BEES?

Reading Gleanings for July 1, about a fracas with cross bees, in Our Own Apiary, raises the question with me as to whether it pays to keep black or hybrid bees at so great an expense of time, labor, and suffering from stings, though we have the courage to battle with them and the good fortune to survive their frequent attacks. As for me, I have

no time for all this labor and risk. Also, friend Root, how do you manage that queens are purely mated, having these black, cross, selfish bees in the apiary or vicinity with your Italians?

Mechanicstown, Md., July 11. S. P. RODDDY.

We were short of bees last spring, and accordingly purchased a few colonies of some neighboring farmers, a part of which were hybrid, and of a rather bad sort. How did we prevent the hybrid drones from mating with our young queens? Easily enough. The old hybrid queens were soon removed, and Alley traps were placed over the entrances to catch all undesirable drones. All this we have explained in GLEANINGS. But a few of the old ugly hybrid bees are with us yet. They can't do any other harm than to sting, and next year we won't be pestered with them. We would hardly take hybrids again as a gift for our purpose, though they are just as good for honey.

WHAT A BOY HAS HEARD AS A REMEDY FOR BEE-STINGS.

I have heard that, if a bee tries to sting you, and you hold your breath, it can not sting you. If this is true, it is a good discovery. I like bees and like to handle them; but sometimes they sit down too hard to please me. I like to read GLEANINGS, and some time I expect to raise bees.

Huron, Cal., July 19. ALBERT R. GILSTRAP.

Yes, we have heard this before. It is another relic of old-fogyism. The best way to prove or disprove such foolishness is to try it when bees are awful cross. Send the old fogy up here; and if he doesn't recant, it will be strange.

CAN BEES LIVE IN NORTHERN MICHIGAN?

Do you think bees would thrive here where it is not uncommon in winter for the mercury to go 15° below zero, and sometimes 25° to 30° below? It has been known to stand below zero continuously for nearly a week. E. W. ALLEN.

Marquette, Mich., July 7.

Yes, bees will do well enough, we think. Perhaps some bee-keeper in the vicinity can inform our friend. The only trouble will be in wintering; but if you use the best methods of indoor, or even outdoor, you ought to succeed.

TOBACCO AS A BEE-FORAGE PLANT.

I feel rather timid in recommending you to try tobacco. In its manufactured state it is, of course, used to the injury of many, but in its original and beautiful form I know of but few, if any, plants superior, if one may judge from the vim and industry with which the bees frequent it from morning light to close of day, from one year's end to the other, winter and summer. We have a temperate climate here, scarcely any frost, and some of the General Grant Virginian kinds are now growing spontaneously (that is, without cultivation) about my poultry-yards and stock-yards, attaining the size of trees, almost, having stems three and four inches through, and flowering every day in the year. C. T. WREN.

Mt. Hobson, Remuera, Auckland, N. Z., March 24.

BEES FOR RHEUMATISM A SUCCESS.

A few months ago I was troubled with a very severe attack of rheumatism, affecting principally the left arm, and almost entirely incapacitating me from work. After practicing upon myself for about two months, with the remedies usual in such cases, and getting no relief, I concluded to try the bee remedy, and commenced applying from one to two to the part affected, three times a day. The effect was so very beneficial, that, after the first day, I was enabled to resume my work upon my place, and after two weeks I was entirely cured. I used Italians hypodermically, making them do the work themselves by holding them with a small pair of forceps to the part selected for the operation. It is needless to say, that the bees seem to understand this practice thoroughly.

Villa Franca, Fla., July 27. J. V. HARRIS, M. D.

IMPOTENT QUEENS.

Mr. Root:—The queen that you sent that lays sterile eggs is not very exceptional. I have had many such. Even a microscopic examination shows no defect. The ovaries are plump, the spermatheca full, and all seemingly in proper condition. But the eggs are impotent. This is interesting as bearing on sterility in our higher animals. It is not only necessary that eggs should grow and pass from the ovaries, but the eggs must be potent. Thus, higher animals may pass the period of ovallation regularly, and yet be sterile. The eggs in this case are sterile, or impotent.

SAND BEES.

I have three more beautiful sand bees from S. H. Crowell, Rockford, Ill. These are *Melissodes Pennsylvanica.* They are much like drone bees in size and form. They are black, beautifully ringed with light yellow. The hind legs are so clothed with hair as to resemble a brush. This enables them to gather and carry pollen. They are mason bees, digging holes for cells in the earth. Here they store pollen, in which they place an egg or eggs. They do good work fertilizing flowers. As Mr. C. requests, I write this to GLEANINGS.

Agricultural College, Mich. A. J. COOK.

REPORTS DISCOURAGING.

POOREST SEASON FOR FRENCHVILLE, WIS.

Season for white honey is about over, and not one-tenth of a crop. So far this is the poorest season for bees, and bee-keepers too, in many years.

Frenchville, Wis., July 28. GEO. RALL.

HONEY CROP A TOTAL FAILURE.

The honey crop is a total failure in this vicinity. It is doubtful whether the bees will gather enough to winter them. If there is a good fall crop they may pull through the winter without feeding.

Lavonia, Ga., July 26. J. J. HARDY.

PROSPECT POOR.

The winter was severe, and the loss was about 40 per cent on account of dry and hot weather, with no dew. Bees gathered scarcely any thing from basswood. Up to date, July 10, only three swarms from 32 colonies. Fall prospects poor; in fact, it looks like a total failure. GEO. W. BALDWIN.

Forest City, Mo., July 10.

A GOOD SUPPLY TRADE, BUT A FAILURE IN HONEY.

This has been my very best season in the supply trade. For a time I was three weeks behind with orders; and now to spoil it all, my customers will hardly get a pound of surplus honey to the colony,

as the season is almost a total failure, and very many of those who were so enthusiastic a month ago are disgusted with the whole business. This is the fourth year that the white clover and basswood have failed to secrete honey. A. B. HERMAN.

Burnett's Creek, Ind., July 25.

CROP WILL BE LIGHT.

Our crop of white honey here on the Mississippi bottom will be very light. Clover never promised any better, but we had one hot week the last of June, and the bees don't seem to get any honey from it since. Basswood is about done blooming. Bees get honey from it early in the morning, but very little comes in through the day.

Savanna, Ill., July 11. JOHN HANDEL.

UTTER FAILURE OF THE HONEY CROP.

Bee-keepers in this vicinity report an utter failure of the honey crop. There are plenty of flowers, but there is no honey. We never had a better outlook for honey than we had in fruit and dandelion bloom. The bees began storing then, but they have been making only a living since then. There was an abundance of white clover here, but it yielded no honey; and those living along the timber reported no basswood honey. Bees are very strong, but they consume all the honey they gather. If fall bloom does not yield more honey than we have had so far, we shall have to feed our bees for winter; but I look for a better fall, as there is lots of buckwheat in this vicinity. Bees swarmed but very little here. The honey crop is reported better in the south part of the county, and swarming was better. O. D. NICHOLS.

Owasa, Ia., July 26.

REPORTS ENCOURAGING.

BEST SEASON EVER EXPERIENCED IN MASSACHUSETTS.

This has been the best season for clover that I ever experienced. It is so dry now, however, that the bees are robbing, and cross as blazes. If we don't get rain soon, our buckwheat and fall honey will amount to nothing. ALLEN LATHAM.

Lancaster, Mass., July 24, 1890.

A BEGINNER'S SUCCESS.

One year ago last spring I had one swarm of bees given me. It swarmed three times, and the 20th of August they had no surplus honey, and last fall we took from them 256 lbs. of honey, most of it being in pound sections. The honey was very nice, and looked like white-clover honey, but it was made from horsemint. I now have 15 swarms of bees, so I begin to think I am a bee-keeper, though they have no surplus honey now. CARRIE KESLER.

St. Anne, Ill., July 30, 1890.

A GOOD YIELD FROM BASSWOOD AND CLOVER.

In this locality the bees have had plenty of clover and basswood to work upon, and I have hives that have already, no doubt, 100 lbs. of clover and basswood honey stored in 1-lb. boxes. But the increase with me has been very small. I had 7 old colonies, all strong, I placed the supers on early, and have, for the number of swarms, lots of honey, but only one new swarm. This may be peculiar to my bees, and the way I have dealt with them, as my neighbors have had, some of them, quite an increase. The honey is superb, and clover and basswood not gone yet either. MILTON L. BISSELL.

Gerry, N. Y., July 28, 1890.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 166.—*1. Can I, by feeding, raise as good queens before the general swarming season as during that time? 2. Can as good queens be raised after the swarming season?*

1. 2. Yes.
Ohio. N. W. A. B. MASON.

Yes, every time.
Ohio. S. W. C. F. MUTH.

1, 2. Yes, if the colony is strong.
Illinois. N. W. DADANT & SON.

1. Doubtful. 2. Still more doubtful.
Ohio. N. W. E. E. HASTY.

1. Yes, I think so. 2. I say yes.
Ohio. N. W. H. R. BOARDMAN.

Theoretically, no to both. Practically, yes to both.
Michigan. C. A. J. COOK.

I should slightly prefer queens reared in swarming time to those reared either before or after.
California. S. W. R. WILKIN.

1. I do not think you can, quite. 2. Yes, they can or can not be, according to circumstances.
Michigan. C. JAMES HEDDON.

1. Yes, but attend closely to the feeding; feed regularly every day, and have the hive or nucleus box *full* of bees. 2. Yes, by the above plan.
Vermont. N. W. A. E. MANUM.

Some of our best queens have been reared either before or after swarming; but as a rule they are not quite as uniform.
New York. C. P. H. ELWOOD.

Yes, to both, if you put the colony rearing queens in the same or a similar condition to what they enjoy during the swarming season.
New York. C. G. M. DOOLITTLE.

1. Yes, if your colonies are strong enough and weather is warm enough. 2. Yes. If the conditions are favorable, just as good queens can be raised in August, or even September, as earlier.
Illinois. N. C. J. A. GREEN.

I don't know. I have never raised queens after the middle of July; but having so many young queens to clip every spring, I know that the bees do supersede some queens after the middle of July. As for the goodness of those late queens, I think they are all right.
Wisconsin. S. W. E. FRANCE.

Yes, select your strongest and best colonies, and by regular and systematic feeding stimulate them to the swarming-point. The best queens we have ever had were raised that way. 2. I can not speak

positively; but reasoning from general principles, I should say not.

Illinois. MRS. L. HARRISON.

I doubt whether as good queens can be raised either before or after as during the swarming season. Still, if the bees are fed bountifully, and the weather is favorable, it is possible that good queens can be raised any time.

Illinois. N. C. C. MILLER.

I think not. Weather is too changeable, and I doubt whether we can supply to the bees, when confined to the hive, food for queen-rearing that will equal that which they are able to provide when weather is warm, and they are flying freely. 2. Yes, with good weather and plenty of honey coming in. What is to hinder?

Wisconsin. S. W. S. I. FREEBORN.

Just as good and just as prolific queens as I ever had in my yard have been raised at both extremes of the season. Liberal feeding and favorable weather are needed. This season, 1890, with us has been so cold that queens could not be raised to advantage. Hot weather and a good flow of honey, or feed, and care on the part of the apiarist, is all that is necessary to raise good queens.

New York. E. RAMBLER.

I am glad to see so many of the opinion that just as good queens can be raised outside of the swarming season, and I am glad, too, to see so many suggest that all the conditions must be complied with. The finest queens I ever reared in my life, and the most satisfactory work in building up colonies I ever did, was during August and September, when we were compelled to keep things moving by daily feeding. Of course, bees got pollen plentifully from corn and other sources; but they obtained so little honey that brood-rearing would have stopped almost entirely had it not been for the daily rations of sugar syrup. Nature is good; but the keen, energetic, and enthusiastic *student* of nature can make nature *boom* in a way she rarely if ever does boom without man's assistance.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

STINGLESS BEES AT THE HOME OF THE HONEY-BEES.

Two or three weeks ago we were notified that a box of bees was at the express office. As they had come from Cuba, we supposed, of course, they were all dead, and were questioning whether we should accept them. We pried off the cover, and on peering through the perforated tin we saw, not a lot of dead bees, but a few dozen little insects that looked very much like what we call "sweat bees." Surmising that they might be the stingless bees, we accepted them at once. Mr. Spafford and I did not know what to do with the things I was a little afraid that they might not be able to defend themselves against the ordinary Italians; and although they were stingless, I had read somewhere that they could bite fearfully hard. Mr. Spafford was requested to fix them up and make the entrance so narrow that the ordinary bees could not pass through. In the mean time the following letter came to hand, which explains itself:

Mr. Root:—With this I send the stingless bees that I wrote you about. I hope they will reach you in good condition, as they are queer little fellows. Some time ago we had ten days of very rainy weather, and the top of the box that they are in had a large crack, and let the water into the box. When the weather was good I went out to see my bees, and I noticed that these little fellows were bringing water up to the door, each one two drops at a time; and as fast as one would back into the hole there would be another. I took off the top, and, to my surprise, found it about half full of water. They were pumping it out as fast as they could. There is not any thing known about these bees. No one has ever seen them swarm. These have been in this box ten years. You will see that at first it was a one-story; but as they filled that up to give them more room, the other piece was put on. I hope you will be able to enlighten us about them.

Havana, Cuba, July 16. JAMES WARNER.

Yes, indeed, they are "queer little fellows." We caught a few and found that they could not be made to sting, and for the very good reason that they *could* not use a weapon that they did not have. The facts related by friend Warner are interesting. Just think of those little fellows carrying the water out, one by one, in little bits of loads from the bottom of their box! When the box arrived I noticed that it was a little damp inside, and this was doubtless because of it. No, friend Warner, there is not very much known about these bees. In some of our back numbers, two or three subscribers have mentioned seeing them in Mexico and elsewhere. I have been vainly looking over the indexes in our back volumes, but I fail just at the moment to find any thing regarding them. I have, however, been watching them very closely.

I will say to our readers, that these bees are about two-thirds the size of the ordinary Italian bee; and as I said at the outset, they look very much like our sweat bees of the North. On the whole they are rather pretty and sprightly, and exceedingly quick on the wing. What they lack in a sting is made up in powerful mandibles, or jaws; and I amused myself considerably by poking long timothy straws into their entrances, to see the little fellows get hold of the grass and fairly bite it in two; and when their jaws went together I could hear them snap. I wanted to put my finger into the hole and feel them bite, but I could hardly scrape up courage enough. Finally when a friend came around I called him up to the hive and told him we had some stingless bees, and suggested the propriety of putting his finger in at the entrance, to see what they would do. Nothing daunted he did so, but they seemed to think there was no use wasting their strength on such a big object, and simply backed into their hole and allowed his finger to remain unmolested. After assuring myself that they would not hurt *him*, I tried it. Very soon some of our Italians began to buzz around, because the box had a strong odor of Southern honey. While

watching I noticed a big fly come up and peek in at the entrance. He had no sooner done so than one of the little fellows jumped out like an arrow, and Mr. Fly absented himself, and that right speedily. I took up an Italian, disabled him, and put him in at the entrance. The little stingless fellows seemed to recognize that he was crippled, and so they simply pushed him out, as they did others that I put in in a similar condition, for I could not get a bee not crippled to even smell at the entrance. One day, while I was chancing to go by, I saw an Italian down in front of the hive. One of the stingless bees was on its back, and with its powerful mandibles was nipping away at the little cord which connects the abdomen with the thorax. I did not see him bite it in two, but he gave it such severe pinches that the bee from Italy finally gave up struggling, and very shortly afterward died. Whether this is a trick of the stingless bees or not, I am not able to say. If so, it is exceedingly cute; and it is something that I wish our Southern subscribers, or those who are favorably situated, would report upon. Be that as it may, we have not been at all afraid that any thing would rob them. They seem fully able to hold their own.

WHY NOT PUT THEM ON MOVABLE COMBS?

Later in the day, after they were received, I told Neighbor H. that we had just come in possession of some stingless bees. He asked me a number of questions, but I could not give him any thing very definite then.

"Why don't you transfer them," he said, "and put them on movable frames?"

"Come with me and I will show you why we don't."

"Why," said he, "they build their nests about like bumble-bees."

"Yes, only more so," I replied.

Their honey-cells are about the size of walnuts, and very much the same shape. They seemed to be in a jumbled-up mass in the center of the hive. Clear down in the center, through a slight opening, I noticed that they had brood-cells about the size of peas, very much in the same mixed-up condition. Their honey-cells will hold perhaps a couple of ounces of honey.

ARE THEY OF ANY PRACTICAL UTILITY?

Although I have been watching to see whether they bring in honey, I have not yet been able to discover that they do. On the contrary, scarcely a bee emerges from the entrance. There can not be more than four or five dozen bees in the whole colony. It is true, we have not been having honey coming in to any extent; but on the day they came, and two or three days after, the Italians were gathering quite a little honey. It would seem that they have gathered all that they think they will need in their southern home, Cuba; and as their numbers are comparatively small, there is no immediate danger of their starving. I am sorry that all our readers can not see them, because they are really interesting if *not* really serviceable to man.

THE DIBBERN BEE-ESCAPE.

Our later experiments with the star-shaped horizontal escape were not very satisfactory. There were too many openings, and the consequence was that the bees would find it and get back through. Still another trouble, the openings were too small, and drones and workers would clog the thing up and shut off the openings altogether. Mr. D. and myself have been having some correspondence back and forth. The result was, he sent me an escape that had only one opening. It is like what we originally illustrated on page 5, 1890, being pear-shaped. The openings in this were much larger, and I am pleased to say that so far it seems to be a success in every way. It will rid an extracting-super of bees in short order. It does not clog up, and so far promises to be a success. The first time I put it on the hive I made a mistake and put it on upside down The result was, that almost all the bees abandoned the brood below and went up into the extracting super above. A few hours afterward we turned it the other side up; and when we came to examine afterward, we found scarcely a bee in the super. I hope that Bro. Doolittle will try one of these later ones.

NOTES OF TRAVEL AMONG YORK STATE BEE-KEEPERS.

FROM MEDINA TO BORODINO.

I start to-day, Aug. 6, on my trip among the bee-keepers of the Eastern States. I take the train to-night, and go as far as Syracuse, when I expect to get off and make the rest of my trip through York State on the Victor wheel. I may be very sick of wheeling or bad roads. If so, I shall seek the aid of the locomotive; but it is a fair average for bicyclers to make about 50 miles a day, with reasonable stops, on fair roads. Day before yesterday morning, before breakfast, I took a run of twenty miles in two hours and ten minutes. I enjoyed my ride exceedingly; and after taking a refreshing drink of new milk, and after eating a little cracked wheat, I felt ready to take another run. This distance was made over somewhat hilly country. I say this, that those of our readers who are unfamiliar with what may be done with the high-grade bicycles will not conclude that I am rather foolish in undertaking what may seem to *them* a wild and impracticable scheme. One of our employes, Mr. Jacob Borger, traveled last summer 400 miles; and after finishing the last mile he seemed to be as hale and hearty as when he started out. So much for the improvements that have been made in cycling within the last seven or eight years. I hope it won't rain. If it does, there are some bee-keepers I may not be able to call upon.

Wednesday, 6th.—Here I am waiting for the train at Medina, rigged out in a bicycle suit; i. e., a blouse, black shirt and tie, with short knee-breeches, black stockings, and low cloth shoes. I wonder if it is undignified to visit bee-keepers in such a habit. No, I am sure it is not. For cycling I need a light and cool suit, and trousers without any flopping edges to catch in the spokes of the wheel or pedals. Besides, I have

strapped to the machine an ordinary suit of clothes for Sundays, and—yes, there is the Kodak under the seat. There goes the whistle, and the train is here. Jacob, who traveled 400 miles last summer through Michigan and Ohio, is ready to help me get the wheel on the train, for most companies won't check bicycles. There, the train is moving, and I scramble for the car-steps. Father gives me a paternal grasp of the hand, and looks a little worried. Mother remarked at the table that she was afraid that I would overdo on the bicycle; or, from the frequent change of drinking-water, become sick. Perhaps father is thinking of the same thing. I will be very careful.

I am in Cleveland now, and my bicycle has been checked as far as Buffalo, on the Lake Shore. The agent says he doesn't know whether the N. Y. C. will or not from Buffalo to Syracuse. I get a sleeping-car ticket, and then delight (?) myself with the thought of how nice it will be to get up from the sleeper a little after midnight to have my wheel re-checked or something else.

I don't sleep very well, for fear the sleeping-car porter will forget to wake me up at the proper time. I yawn and stretch, and think how nice (?) it will be to make a bicycle trip from Syracuse among bee-keepers, with my wheel in Buffalo. The weary hours wear by, and finally, by squinting at my watch by the dim light, I guess it is about time to get up. I am all dressed when the porter punches and says, "Hurry up and get up, boss, for we're near Buffalo." The train has no sooner stopped than I glance at the name of the car I am on, and then run forward to the baggage-car. The train waits but a few minutes, and the baggage-man says the wheel can't be taken if there is lots of baggage. I hang around and parley with him while I try to keep watch of my sleeper, which I see is switching on to another track. Finally the railroad official asks for the check on the bicycle, which had been put on by the Lake Shore Co. Oh dear! *oh dear!* I can't find it! Yes, here it is. I remembered then that Jacob said, "If the agent is 'obstreperous,' offer him a quarter." I did so, and then handed him another quarter to take good care of it and not bang it around. The baggage-man is very obliging. His face shows that there is *plenty* of room in the car, and that he will see that it is safely delivered in Syracuse. The other baggage-man called out, "You didn't give me no quarters, and I brought it to Buffalo."

"Yes," I say, "but your company checked it." I have no time to settle with another man, for my sleeper is — where? I am on the other horn of the dilemma; viz., a bicycle in Syracuse, but the rider still in Buffalo. I race up and down that immense depot, looking for a sleeper with the right name. Over there is one just going out on the end of a long train. Yes, it is the right one. In a few minutes I am asleep, because both horns of the dilemma are out of the way.

Thursday, 7th.—I am in Syracuse on my bicycle, both of us unharmed by the contingency of the night before. The roads and scenery are beautiful. The wheel makes not the slightest noise; and if ever I felt enchanted, it is on this bright cool morning, flying, as it were, to Skaneateles, 25 miles distant.

13 MILES OUT.

Oh dear! There's a hill a mile long, and a steep one; and, worse than all, it's stony and rough. I dismount and push up hill. I don't feel very much "enchanted" now. The sun is hot, and I am sticky with sweat, and the exhilaration of "flying" is well nigh spent. I am on top of the hill now, and am spinning through the country. It's lots of fun to cycle.

AT SKANEATELES.

I have gone 25 miles in a little over three hours. I am not fatigued. The beautiful Skaneateles Lake is spread before me. The air is delightfully fresh after a ride. The water at the dock is as clear as crystal, and I can see good-sized fish in the water 12 feet deep. A beautiful little steamer will leave soon, and I board it for Borodino, the home of G. M. Doolittle. On the right are pleasure-resorts on the rising shores; over to the left is Borodino. It looks as if it might be a pretty place. It's too dark now, or I would take a photograph with the Kodak.

ERNEST.

TOBACCO COLUMN.

THE INFLUENCE OF THE TOBACCO COLUMN IN THE FAMILY.

I notice in GLEANINGS that you give a smoker to any person who stops using tobacco. I have stopped, and I thought I would ask you to send me one. I agree to pay you 75 cents for it should I again commence. My father is a subscriber to GLEANINGS. He has about 20 colonies of bees, and a smoker would be a welcome present.

Waverly, Neb., June 20. CHAS. D. GILLHAM.

I like your efforts to get people to quit using tobacco. After seeing your offer to give a smoker if any one would quit using tobacco, I have made up my mind to quit using it in any shape; and if I ever break my pledge I will send you $1.00 to pay for it.

Darien, N. Y., July 1. F. L. WOTTON.

PLEDGES NEVER TO USE THE WEED AGAIN.

Mr. Virgil J. Seymour, who is a man of 60 years, pledges himself never to use tobacco in any form. Please send him a smoker; and if he uses the weed again he pledges himself to pay for the smoker.

Nunica, Mich., July 3. MRS. E. C. REID.

ONE WHO HAS USED THE WEED 20 YEARS, AND QUITS.

Having taken more interest each time I have read your Tobacco Column, I have made up my mind to give up the use of tobacco. I have used the weed, in smoking only, for the last 20 years, and will pay you for the smoker if I touch it again.

Sydney, Australia, June 3. N. LEROY TRACY.

I have quit the use of tobacco, and I promise to pay for the smoker if I ever use it again.

Camden, Mich. FRANK KUNKLE.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

QUITTING THE BEE-BUSINESS AND GOING INTO GARDENING.

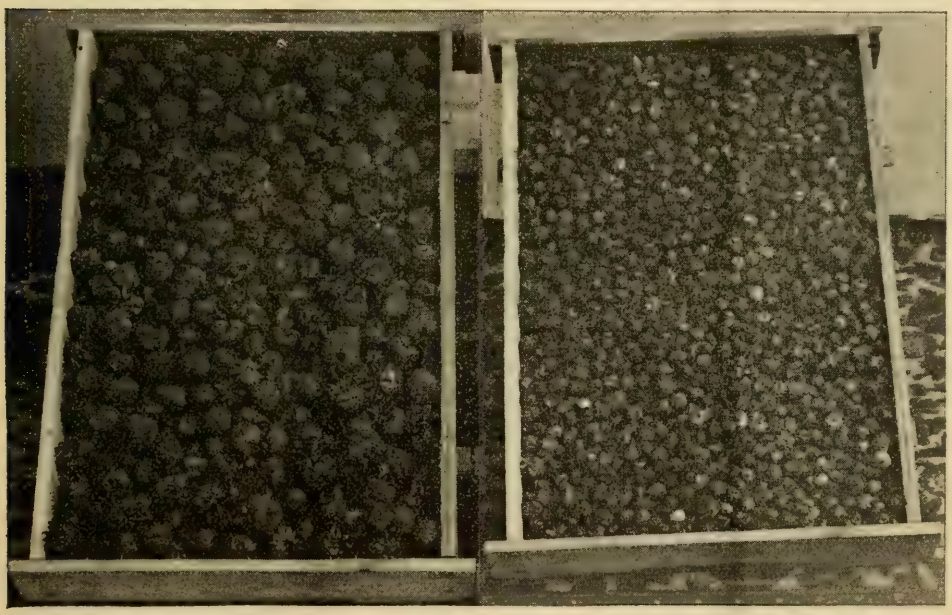
A FEW days ago notice was received from a postmaster somewhere away down in Texas, saying we need not send GLEANINGS any more to a certain bee-friend at his office. I think that the postmaster said that this friend had gone into other business, but I don't quite remember. I do remember this, however, that the postmaster, for some reason or other, inclosed a photograph, and a copy of this photograph we submit to our readers.

GIVING UP BEE CULTURE AND GOING INTO GARDENING; BEETS, ONIONS, POTATOES, AND CARROTS.

You will notice that all these vegetables are piled up against a bee-hive. You can not get much of a glimpse of the hive on account of the vegetables; but by the way the cover is cleated we infer that our friend has read the journals and kept up with the times. Right under the cover we find the legend inscribed, "First Credit Foncier Bee-hive." If 12 onions weigh 18 lbs., these white onions weigh 1½ lbs. or more. In our market such onions would bring 10 cents per lb. in July, and we have been selling them at that price for nearly a month past. Ours are the White Victoria. We sowed the seed in the greenhouse, and planted the onions in the open ground as soon as the frost was out of the ground so it could be worked readily. Two rows only 150 feet long gave us six bushels of these great onions. As six potatoes weigh 6 lbs., they average a pound apiece. During the month of July such potatoes would have brought 4 cents per lb., or perhaps nice specimens like the above would have brought a nickel apiece. With us, carrots are slow sale; but perhaps we might have got 1 cent per lb. for them. Now, if our friend has as good a market as we have, he perhaps is doing a fine thing in gardening. It should be remembered, however, that these prices are to be obtained only by carrying the vegetables fresh from the ground right to the people's homes. Our land is inside of the corporation of a town of 2000 inhabitants. I have told you how we get our good prices. Most of you know that green corn is very much nicer when taken directly from the garden right to the kitchen stove; therefore one of our boys gets up

at five o'clock and gathers the green corn for the wagon that starts out at six. People have found out that *our* corn is just from the stalks, and they willingly pay us 12 cents a dozen, even for small ears of early corn. Large onions, large potatoes, nice fresh corn, and other things to match, bring good prices. May I suggest to our friend, however, that if I were in his place I should not be in haste to abandon the bee-business. Don't make your hives into kindling-wood just yet, as you see our friend doing on another page. Take good care of them, even if they don't pay Now. Don't buy any new traps or fixtures. In fact, don't pay out any more money until there is a better prospect of some money coming in. Of course, I wouldn't let the bees starve. Feed them during poor seasons when they may be likely to be out of stores, and keep them in reserve. When the onions and potatoes and carrots do not pay very well, just as likely as not bees will pay tiptop.

down to one or two kinds, instead of the great string of varieties we find in most catalogues. Let us take wax beans for instance. Wardwell's kidney wax beans, at least in our locality, are in every respect superior to any thing else in the way of wax beans. They are larger, and so free from rust that you will not find a specked pod in a whole bushel—absolutely stringless, and more productive than any other bean we have ever raised. To-day I picked 16 great beautiful pods, as handsome as wax work, off from one beanstalk. This is the product of a plant from a bean dropped when we were planting beets. It is a great relief to us to have only this one kind. We have for weeks been getting 50 cents a peck for them, and they are going off now by the bushel, at 30 cents a peck. What is the use of so many varieties? We are proposing to cut our seed catalogue for 1891 down to fewer varieties than ever before; but in order to do this intelligently, we are testing



THE REASON WHY FRIEND TERRY GOT $4.00 A BUSHEL FOR HIS STRAWBERRIES WHEN OTHER FOLKS COULD NOT GET $2.00.

The picture above, which is from a photograph, illustrates the truth in our heading. Friend Terry had pictures of drawers of different kinds of his berries made for the strawberry-book; and while doing it, the idea suggested itself of taking a drawer from the stock in front of one of the groceries, and putting it side by side with his own. Although the picture is not a very good one, it tells the story. On page 502 I gave you an illustration of the way in which his berries sell while the market is glutted with the common kinds.

RAISING FEWER KINDS OF VEGETABLES.

It is a very great relief to me, and doubtless will be to many of the friends, to come

almost every variety offered. Just think what a relief it will be to have one kind of tomatoes, one kind of wax beans, two kinds of lettuce, three kinds of cabbages, two kinds of corn, two kinds of cucumbers, two kinds of muskmelons, same of watermelons, two kinds of onions, three kinds of peas, three kinds of radish, two kinds of squash, two kinds of turnips. I do not know that we shall be able to cut down quite as close as the above, but we are planning to come pretty near it. There may be special circumstances requiring different varieties for different localities; but perhaps a bright, wide-awake seedsman in each different locality can help this matter to some extent.

Our Homes.

But he said, Nay; lest while ye gather up the tares ye root up also the wheat with them.—Matt. 13:29.

A few days ago I went up into our swamp garden. Owing to the cares of building, and other cares combined, I had not been up there for some time. But as the onions had been thoroughly weeded only a short time before that, I concluded that nothing could be suffering *very* much. To my astonishment, however, the whole piece of ground was literally matted with great plants of purslain. One would wonder how one little root could produce so great an amount of foliage, and I began to conclude that purslain must be a sort of air-plant; that is, it gets largely of its sustenance from the air and rain as well as from the medium of the root. The onions were making a splendid growth, but a great many of them were getting badly choked. I like to pull out purslain, because we get such a great amount of weeds by pulling up only one very small root. These roots were branching, however, a great deal like the tops, and the rich black soil was so loose that, when the weeds came up, out came with them several nice onions. The onions were of the new Victoria, that I have told you about, and they came up so white and beautiful that it really seemed too bad. But, what was to be done? That purslain must all come out of the swamp *before night*. I called the hands and instructed them to hold the onions down very carefully while they pulled the weeds out. By using care and patience the onions would be harmed but very little. But if one went at it with a rush, and just scraped the "pusley" up by the armsful, the onion-patch would be almost ruined. While deciding what to do, the text at the head of this lesson came to my mind. Oh how much need there is of careful people in this world—of careful boys and girls! How I do love them! In order to be careful, one needs to have a love in his heart for his work. Somebody who is enthusiastic in gardening, and loves to see the onions grow, would probably, without instruction, get the weeds out without making mischief. And so it is, dear friends, in weeding out the sin and evil that are to be found in this world—yes, in these daily lives of ours. I am inclined to think that most of those who read these pages are called upon daily, perhaps hourly, to instruct others, to rebuke and to reprove sin, and very likely to take to task those who have been remiss in duty. Oh what a glorious thing it is to have the spirit of Christ in our hearts—to have the grace of God uppermost when we undertake to right wrongs!

Let me give you some samples in daily business. There are certain things that greatly annoy and vex our clerks here in the office. Yes, and these things also annoy and vex the great world at large, more or less, also. Perhaps no one thing occasions more vexation here than to have people order bulky or heavy goods by express, and then refuse to take them when they get to destination. I have told you before that, in order to facilitate rapid transit, we obligate ourselves to pay every bill of express charges on every thing we send out—that is, where the consignee *refuses* to pay; and our clerks have had so many trials and losses in this line that perhaps they are almost *too* ready to stand up for our rights. If one even *thoughtlessly* orders something by express that ought to go by freight, if he is not a responsible man it will, of course, be like any other transaction—he can not be made to pay for what he has ordered unless he chooses to. If the goods are refused, in due time the express company notifies us of the fact, and asks for a disposition, and presents a bill of charges. Now, if the man who orders the goods would write and tell us that he had refused them because the charges were more than he expected, it would make the matter better. But usually he refuses to pay the charges, and there drops it. We write and write; and when we can get no answer we ask the postmaster about him; then perhaps the commercial agencies hunt him up to see whether he is responsible. If the amount is considerable, an attorney sometimes needs to be employed in the case.

What has all this to do with the Bible text? you ask. Why, this much: In these days of Endeavor societies, young people's weekly prayer-meetings and revival times, it often happens that the one who ordered the goods is a Christian—perhaps a young convert; and I hardly need tell you that nothing quenches the spirit of Christ in the heart of a young convert like a quarrel—perhaps a lawsuit. Where one has *fairly started* out on the road from earth to heaven, something of this kind may cause him to settle back and give it all up. Now, then, how shall we take him to task for putting us to the trouble and sometimes large expense by his own thoughtlessness? Our usual way is to wait 30 days, or until the express company notifies us that the goods are lying at destination, uncalled for. Then we write the one who made the order, asking him why he refuses the goods, explaining the circumstances. If he still refuses to pay the charges after we have traced them up to see that they are correct, we then tell him that we hold his order in plain black and white, with his signature at the bottom, and that we shall have to *hold him* to his contract if he is worth enough to be responsible. Now, this is right and proper. As a rule, it does the young Christian, or *anybody else*, good, to hold him to his contracts. One can not be a Christian, nor even a fair business man, and repudiate his promises made in plain black and white. But the trouble with us here is, that we are in too much haste to take it for granted that somebody means to beat us out of our money. Then we go to work straightening him up, as I went to work pulling the purslain out of the onions. Our friend is made angry, and becomes soured toward us and toward the express companies also. If he is starting out to be a Christian, he may be soured toward Christ Jesus, and may be lost, and never make another start. Think of comparing

for a moment the loss of a few cents, or even a few dollars, to the loss of a soul!

We were recently notified by an express agent in Colorado that a package with a considerable amount of expressage on it was refused. We accordingly wrote as follows to the one who ordered the goods:

E. M. Beckwith,—

Dear Sir:—We understand from your agent at Rye, Colorado, that the package we shipped you June 23 is refused by you on account of excessive charges. You should have acquainted yourself with the expense of shipping before making the order. We filled the order just as you gave it; and in order to have express shipments forwarded promptly, we have to guarantee charges; and if you do not pay them, it will come back on to us, and we in turn will have to get it out of you some way, if possible, if you are worth it. You might just as well save all this trouble by accepting the package and paying the charges, and learn a useful lesson by which you can profit in the future.

It seems, however, that the express company had been hasty as well as ourselves. In due time comes the following letter:

Mr. Root:—In your understanding that I refused to pay the charges on your express packages, you are not correct. I never refused to pay the charges, but simply said that they were excessive. The package lay in the office during my confinement by sickness, some two weeks, but I sent the money to the agent before I was able to go for the packages. I had Mrs. Ellwell, of Pueblo, send last spring, a year ago, for your hives and fixings, which I am using. But your fear that you can not make the charges out of me will prevent me hereafter from getting my friends to patronize you, lest their deal with you be no better than mine.

Rye, Col., July 30. E. M. BECKWITH, M. D.

You will see from the above that our friend did not refuse to take the goods; and, furthermore, that he has been for some years a friend of GLEANINGS, and has induced different individuals to send orders to us. No wonder he felt provoked when he received such a sharp letter as ours, simply because sickness prevented him from going to the express office. Do you not see how much better a mild letter of inquiry would have been in the first place?

You will notice that the letter opens up with "Dear Sir." Most of our correspondence, as you may have observed, commences with "Friend." But as we were vexed because the goods were refused, as we had been told, I presume the "Dear Sir" accorded more with our feelings. Looking back at the transaction now, it is very easy to see how much better something like the following would have been:

Friend Beckwith:—We are told by the express agent at your place that you have refused the package of June 23, on account of excessive charges. Perhaps you are not aware that we shall have to pay these charges if you do not. Of course, we do not know you; but we can hardly believe that you would willingly let the whole burden of this expense fall on us when we simply did exactly as you directed us to do. Will you not please let us hear from you at once?

Now, if such a letter as the above would not bring a courteous and gentlemanly answer, then it would have been time enough to suggest to him that he was legally responsible—that is, if he was a responsible man—for the consequences of his blunder if it was a blunder.

A little incident in the papers a few days ago read something like this:

A little girl propounded a question to her mother.

"Mother, which do you think is the worse—stealing, or telling lies?"

Her mother was somewhat puzzled, and asked her little daughter what she thought about it. She replied something like this:

"Why, I rather think that telling lies is worse than stealing; because, you know, if you steal any thing you can carry it back or pay for it; but if you tell a lie it just stays there for ever."

Now, my friends, there is a sad moral to the wonderful truth expressed by the little girl. We can atone for the loss of property by an apology; but when we hastily give way to the temptation to speak harsh or unkind words—words that cut and sting—it is a pretty hard matter to take them back. The express company thought it very likely that our friend refused the goods because of the excessive charges; and we, in a like manner, took it for granted that we had got to pay the tremendous express charges this long distance, and then get them home the best we could. "Is not easily provoked; thinketh no evil." What a grand little text this is, in view of matters like the above! Below is our letter of apology, but we feel that it will hardly heal up the wound we unwittingly gave to a friend of ours:

Friend Beckwith:—We beg pardon for having worded our letter quite so strongly. We have had quite a little trouble recently with parties refusing express shipments because they thought the charges too high; and from the way your agent stated the matter, we thought you presented a case of the same kind. We are glad to know that in this we were mistaken, and beg your pardon for having accused you falsely. We trust you will not cherish any ill will toward us because of this.

Another productive cause of trouble is *returning* goods without first writing to us and asking what disposition to make of them in case they are not wanted. It is very expensive shipping goods long distances, either by express or freight; and our trade is scattered so thoroughly that we can almost always order, to somebody near by, a thing that is not wanted, and thus save losses; whereas if the goods are sent back here, we are obliged to pay transportation two ways if the mistake is ours. If the mistake is our customer's, *he* is needlessly out of pocket; and I do not feel a bit better to see somebody else lose money than I do if I lose it myself. May be that is a pretty strong statement, but I *hope* it is true. Sometimes when I am vexed or provoked I am tempted to say, "It teaches them a good lesson;" or, "Perhaps it will help them to remember next time." But I always feel bad to see anybody lose his hard-earned money. I know what it is, dear friends, to work hard; and I am willing to work hard, but I do want a proper compensation for my labor. When I work hard and get nothing for it, it vexes me; and when anybody else works hard and gets nothing for it, it vexes me just as much, I am sure. And when somebody is so bad and wicked that he will, *without scruple*, take another's hard earnings without recompense, I am tempted to get into a fighting mood. At such times I might make haste to pull out the tares, and root out, also, good wheat. Well, in our price list we very emphatically request that noth-

ing be returned before first writing for instructions in regard to it. When you get something that does not please you, the proper thing to do is to write and say so, telling the sender the goods are *subject to his order*, and asking for directions for disposal. Now, please, friends, bear this in mind: If you decline to receive the goods, they are not *yours;* and if *not* yours, you have no business to send them *anywhere.* Just think of taking the liberty of sending goods that do not belong to you, without authority! Even an *express* agent has no right to return goods until he has instructions so to do from the owner. If he does, he is responsible for all charges. This we have settled by actual test; therefore please remember this, that, when you receive something that is not up to contract, or that, for some reason or other, you do not want, or did not order, neither you nor your express agent has any right *whatever*, nor any *authority* whatever, for sending the goods anywhere. Write to the real owner of the property in question, and ask him his pleasure in regard to it. If he does not reply, and the things still remain on your hands, you can, if you choose, make out a bill for storage and care for them. But *until* he does reply, they are *his* property intrusted to *your* care. You may leave them at the railroad depot or at the express office, if you choose, and while there the owner must pay for storage, if he does not give orders in regard to their disposal.

Some years ago some very good friends of ours—Christian people too, if I am correct—received something they did not order. Instead of waiting to hear from us they made haste to send the goods back to us by express. Now, it happened that these goods were the product of a manufacturer who agrees to make good every imperfection in regard to them; and his instructions are that every thing shall be shipped back to the factory. Our customer, without waiting to be informed of this, sent them back to *us* with heavy charges, when they could have been sent more cheaply to the factory where they were made. We had to pay the express charges on receipt of the goods, and then they had to be reshipped to the factory. I was provoked, and wrote him that we should have to ask him to pay the expense of his folly in expressing them to us without any instructions from us to do so. It was the old story—because of the loss of a small amount of money I pulled up the wheat with the tares. He became angry, and said that if such a letter as that was according to my ideas of Christianity, he wanted no further deal with A. I. Root, and never wanted to read Gleanings any more. I wrote him, explaining matters; but he was soured, and has never traded with us since (several years have passed), until I saw a small order from him during the rush of the past season. How glad I was to see the old familiar signature! Friend ——, if this meets your eye, please forgive me for my hasty letter. I should have remembered that you had been for many long years a friend of ours, and a friend of Gleanings; and if you were hasty it was my duty to have reminded you of it in gentle terms, at least before writing harshly.

Most of you can recall instances where those who have been excellent friends for years have had trouble over some trifling matter, and, for some unaccountable reason, former friendly terms have never been renewed. I have seen people quarrel in a good-natured way as to who should be *permitted* to bear the expense of some little sum. Each one held the other in such friendly esteem that it became a privilege to pay 25 cents, or even a dollar or more, to show his friendship and good will. This state of affairs exists because the two parties have unlimited *faith* and *confidence* in each other. You, perhaps, have friends whom you feel so sure are the very *soul* of honor that you would entrust them with almost any amount, without even a thought of anxiety. You have *faith* in such a one. This kind of faith is beautiful to behold, and I am sure it would be better if there were more of it. When the two are brothers in *Christ Jesus*, such confidence and perfect trust are still more beautiful to behold. It is one of the things in life worth living for. Well, now, such a faith and such a trust may be upset and demolished, and ruthlessly torn to shreds by just this thing I have been talking about to-day. Even such people as the ones I have described, who are the soul of honor, are still human, and have their imperfections. As a faithful friend it is your duty, no doubt, to labor with them in regard to their faults and failings, and they will think all the more of you for it, providing you do it with a careful and loving hand. I remember one such friend now; and the very thing that makes him exceedingly near and dear is because he talks to me *plainly.* He says to me things that I would hardly dare to say to anybody else, and that perhaps nobody else would be plain enough to say to me. But he says them with such exceeding kindness that I never feel vexed toward him. Now, suppose he should some time, when vexed, or sorely tried with me (or perhaps with somebody else), forget himself so far as to speak to me in anger. Even if he did, I hope and pray that God would give me grace to remember the years when he has given me only sympathy and kindness and gentleness. It wants a Christian spirit on both sides. We ought to be ready and willing to *bear* with our friends, even if they do forget themselves; and they on their part ought to be very careful about *forgetting.* Every Christian should be prepared to do *more* than his part both ways. He should do *more* than his share of forbearing, and he should do *more* than his share in forgiving. In this way these misunderstandings, and words that hurt and sting for years afterward, may be avoided. In this same line let us be *slow* to think evil. I told the friend who expressed the goods back to me that we should have to ask him to pay the expense of what he had done without orders. Under other circumstances I would have paid the amount twice over rather than appear ungentlemanly to one whom I had known so long, or rather than to appear *small* in deal. A dear friend of mine, who is not a Christian man, once saw a storekeeper and customer using hard words ove

a matter of 25 cents. He commenced to reprove them, when each party began to tell his story. He interrupted them something like this:

"But, my friend, the amount in question is only *25 cents.*"

One of the two asked him if he would be willing to be *beat* out of 25 cents. He replied, "Why, I would lose 25 cents *any time* rather than to use hard words, and talk to each other as you have been talking."

They were both silenced, and hung their heads in shame. The two who were quarreling were Christians. The man who said he would give 25 cents any time rather than have a "wrangle," was not a Christian. I often think of his words, and they have done me good. Let us look out for our rights, and in a good-natured way defend ourselves, even in small matters. But, dear brethren, do we not often make a great ado over something comparatively small and unimportant? Sometimes I get hold of letters written by the clerks, where the circumstances are aggravating. Sometimes I say, "Look here, my friend, all you say is no doubt true; but will it not be a great deal better to cross out this sentence, and that, and that? The letter will be just as well without it, and I know by experience that it will save hard feelings. Let us *never* stir somebody up needlessly. Let us not say severe things, even though they may be true, unless we are certain that some good is going to come from them. If it will be the means of leading this poor friend to *Christ Jesus*, by all means *let it go;* if not, strike out these passages, and have the letter written over again." Remember the wheat that may be rooted up and destroyed when we undertake with ruthless hand, and without due thought and proper care, to pluck out the tares.

EDITORIAL.

He that is soon angry dealeth foolishly; and a man of wicked devices is hated.—PROV. 14: 17.

S. W. MORRISON IN COLORADO.

FRIEND MORRISON desires us to state that he is now located in Colorado Springs, whither he has removed on account of his wife's health. He also says he is out of the queen-rearing business.

GARDENING FOR AUGUST.

IF you have good ground, well enriched, worked up fine, there are several crops that may be put in now with profit. Eclipse beets; celery, if you have good strong plants; Grand Rapids lettuce, but the plants would be better than the seeds if you can get them; Egyptian onions; Early Frame and Chinese Rose Winter radish; and purple-top turnip. The latter may be somewhat doubtful; but with plenty of rain they will doubtless make a nice size for table use. Last, but by no means least, winter spinach. Last fall we sold bushels and bushels of spinach at from 5 to 10 cts. per lb., and didn't have enough. Few if any one in our community had used spinach until we introduced it, and now it is quite a staple article. It will probably take a full acre to supply our demand during the coming fall, winter, and spring. If sown now it will get to be large and stocky, well prepared to stand the winter; yet there will be no danger of its starting to seed until in the spring. And, by the way, spinach is an excellent feed for poultry. They will feed on it all winter, as you may find to your sorrow, if you don't have your patch far enough away from their range. We can furnish the best American Savoy or Bloomsdale seed at 5 cts. per oz., or 30 cts. per lb.; 5 lbs. or more, 25 cts. per lb. It needs about 10 lbs. per acre. We sow it with a common wheat-drill, using phosphate, just as we do for wheat. Southern Prize turnip may be sown this month or next.

THE STRAWBERRY-PLANTS WE SELL, AND THE WAY WE RAISE THEM.

THE demand for the four kinds of strawberries we offer has been beyond any thing heretofore known; but so far each order has been filled by return mail. Perhaps you would like to know how we raise the plants. The original plants were set out just about a year ago. This season, just before the runners began to set, the ground was harrowed between the rows until very fine. Just at this time our large compost-heap had to be removed on account of our new building. In order to avoid handling the stuff twice, I told the boys we would put it all between the strawberries. Then we harrowed the ground again to work in the manure. After that, about two inches of ashes were spread over the surface, and this was again thoroughly raked into the soil. Then the boys went to work and spread the runners out so as to cover the ground, putting a lump of dirt (or manure if they could get hold of it) on every runner. As soon as they were rooted sufficiently to fill orders, we went through, took all that were rooted enough, pulled the others up, and swung them around in order that we might give the ground *another* tremendous harrowing. Then the boys went through again, placing the runners that had been pulled up, as before. It was a great amount of work; but had we not done it we should never have been able to meet the tremendous demand our friends are making on us for plants. The Gandies and Haverlands seemed to catch hold of the idea at the same time their roots caught hold of the manure and ashes; and, oh my! how they have just put in the time and made roots and runners! About the middle of July some of these first plants were taken up with the transplanting-tubes, and moved to a new plantation, and some of these young plants in the new plantation, in just four weeks have now four or five strong plants of their own. All the plants have been grown so far without irrigation, as sufficient harrowing has been made to take the place of it; but unless it rains very soon, the windmill will have to be called in to *help* fill orders for plants. Please remember that both Bubach and Haverland are pistillate varieties, and must have a row of Jessies, or some other staminate variety, near them.

ALFALFA HONEY.

WE make the following extract from the Lakin *Index*, published at Lakin, Kansas:

How doth the little busy bee improve each shining hour, and maketh honey every day from the sweet alfalfa flower! Farmer John Troutman, being the pioneer "bee-man" of Kearney County, drove into town on Saturday last, and disposed of a nice lot of that fine-haired luxury called comb honey, retailing the delicate golden sweet at 15 cents

per pound. He did not wait for customers, but his stock was eagerly taken. Our eastern friends may talk about their basswood and alsike-clover honey, but the Western Kansas man, with his fields of constantly blooming alfalfa, can exclaim, "Eureka!" and down all competitors with a marketable product of the industrious bee, made from the alfalfa bloom.

It is true, that alfalfa honey is destined to take the front rank. It has a most delicate and beautiful flavor, and all who taste it are quite willing to acknowledge that it has a little the finest flavor of any honey they ever tasted. One peculiarity of it is, it leaves no burning sensation to sensitive throats, of which some people complain.

JUDGING A QUEEN BY HER LOOKS.

WE had supposed that the day is passed when any one would undertake to decide by a queen's looks whether she produces pure bees—whether she was imported or not, etc. But, twice this season we have had customers who claimed and presumed to call a queen not what she was represented to be, simply from her looks, after an exhausting trip through the mails. One man says he showed her to all the best judges in his neighborhood, and they all pronounced her to be a hybrid. In the other case, our customer had received an imported queen, which, after a while, failed to lay. On being informed of this we at once sent him another best imported—in fact, one of the best queens we had in our apiary. Without introducing her at all, he looked at her, then carried her to a friend of his who was presumed to be a judge, and they together looked at her, and decided that she was just like the old one, because she *looked* like her; whereupon these two wise friends mailed her away to Medina again. We are glad to say that she came through all right. We do not propose to take any more risks in trying to satisfy such unreasonable people. Now, please let us have it understood, that, if you are going to judge of a queen by her looks, you had better not send to us. Our queens are to be judged by the workers they produce, and the work that these workers do. Of course, we like to have a good-sized queen; and if she is light in color, we are well aware that it goes a good way with some people. Very few queens, after a long trip through the mails, look very bright or large. When the queen is received, if there is any life in her at all, give her a chance, and do not complain until there is something to complain of.

Moral.—When anybody claims to be so wise as to be able to tell what a queen is worth, simply from her looks, set him down either as very ignorant in bee culture or very dishonest.

SPECIAL NOTICES.

COMB AND EXTRACTED HONEY FROM ARIZONA.

We have just received from the Bee-keepers' Association of Maricopa Co., Arizona, a carload of very fine extracted and comb honey. There is only about a ton of comb and about 16 tons of extracted. It is principally alfalfa, and of very fine flavor and color. The comb honey is in 24 and 48 lb. cases, with no glass, and the price is 17 cts. per lb. In lots of 5 cases or more, 16 cts. The extracted honey is all in 60-lb. cans, 2 cans in a case; the price is 10 cts. per lb. by the case of one or two cans; 3 cases or more, 9 cts. per lb. Those wanting 1000 lbs. or more will please write us for prices. From the number of inquiries for comb honey that we have, you will have to speak quick if you expect to get any of his.

We are negotiating for a carload of comb honey to arrive from Reno, Nev., between the middle and last of September. This is to come from W. K. Ball, from whom we received some alfalfa of last year's crop several months ago, which is the mildest, most palatable honey we ever tasted. The honey offered above is very much like it.

SOME STATISTICS IN REGARD TO BUSINESS AT THE HOME OF THE HONEY-BEES.

It may be of interest to many of our readers to learn something of the extent of the bee-keepers' supply business as carried on at the Home of the Honey-Bees the past year. As we have had to collect statistics for the census bureau, we give you some of the results of our investigations. We give figures in round numbers, within a very few of the actual count, and more easily remembered. The whole number of hives of the five styles we make was a little over 36,000, of which we sold 20,000 Dovetailed, 10,000 Simplicity, 3000 Portico, 1700 two-story chaff, and 1450 one-story chaff. The previous year, when the Dovetailed hive was introduced, about March, it reached a sale of 4200, and 12,000 Simplicity were sold. This shows that the Dovetailed hive has taken its place rapidly at the head of the list, and made the whole number of Simplicities diminish when every thing else has increased.

For convenience we will arrange the statistics in the form of a table, comparing a few items with the number produced a year ago, which was our largest year until the present. By this you will see the great increase, and the reason for our being (for a time) so behind on orders, and having to run day and night to fill them.

Quantity produced and sold from Sept. 1888 to Sept. 1889.		*Sept. '89, Aug. '90.*
Dovetailed hives	4 200	20,000
Simplicity hives	12,000	10,000
Portico hives	2,000	3,000
Two story Chaff hives	1,100	1,700
One-story Chaff hives	900	1,450
Brood frames, Simp. size	360,000	500,000
One-piece sections	5,000,000	6,500,000
Weight of freight shipments	1,350,000 lbs	2,250,000

The number of shipments by freight or a year is about 7000, and by express 3000. The average number of hands employed for a year has been 100, and the amount paid them, $40,000. We have turned out 20,000 Clark's smokers in a year; and 75 casks, of 600 lbs. each, of sheet zinc, has been made into queen-excluding metal, making about 80,000 sq. ft.

Of the six and a half million sections sold, we bought from other makers 1,310,000, and would have bought many more if we could have got them, rather than send out many made from dark and poorly seasoned lumber that we had to send in order to fill orders at all.

PREPARATIONS FOR THE FUTURE.

We have now well under way another two story brick building, 37x100 ft., to be used on first floor for making comb foundation and for a machine-shop, and on the upper floor for tin-shop, japanning room, and making smokers. This will give us the whole of both floors in the building 44x96, erected in 1886, for wood-working machinery. As our 90 H. P. engine is inadequate to run so much machinery we are putting on a larger cylinder to increase its power to about 150 H. P. Our Mr. Warner has been to Michigan and secured a shipload of pine lumber from which we expect to make a better quality of hives than some we had to send out the past few months. We are trying to secure sufficient basswood lumber so that we may not be caught again as we were last spring with the season before us, and not half enough dry lumber. We are beginning already to make up a stock of goods for next season's trade, and as usual we will from this date allow a

DISCOUNT FOR GOODS FOR NEXT SEASON'S USE.

The terms are just the same as they were a year ago. You can refer to back numbers of GLEANINGS, or old discount sheet; or if you write we will mail you terms. The discount will be 5 per cent up to Nov. 1, when it will drop 1 per cent each month till it has all vanished. The discount is allowed only on goods of our manufacture, bought now for next season's use, and does not apply to honey-packages, counter-goods, and the like, that you will use this fall, and which are already sold at close prices.

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Zinc, Perforated.....636

CONVENTION NOTICES.

The Southwestern Wisconsin Bee-keepers' Affiliated Association will meet Oct 8, 1890, in Platteville, Wis., at the residence of E. France, to commence punctually at 10 A.M., sharp. There will be a large turnout of prominent bee-keepers of the State. A question-box, free to all, in which any subject you wish discussed can be presented and answered. Let every one be on hand and bring in his report for 1890 starting at spring count, or May 1. There will be blanks sent to each member for this purpose, in due time, by the secretary.

N. B.—The date of the above convention has been changed from the 1st to the 8th.

Boscobel, Wis. BENJ. E. RICE, Sec'y.

SHIPPING-CRATES.

We are making them cheap and neat.
Write for prices.

C. B. LEWIS & CO.,
WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; G. L. Tinker, New Philadelphia, Ohio; E. S. Armstrong, Jerseyville, Ill.; E. Kretchmer, Red Oak, Iowa; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

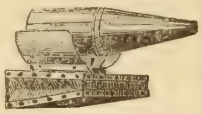
The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY

Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.
Bingham's Patent Smokers,
Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...	$2.00
Conqueror "	3 "	"	...	1.75
Large "	2½ "	"	...	1 50
Extra (wide shield)	2 "	"	...	1.25
Plain (narrow ")	2 "	"	...	1 00
Little Wonder,	1¾ "	"	...	65
Uncapping Knife.....				1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
5tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.

☞In responding to this advertisement mention GLEANINGS.

GOLDEN ITALIANS.

Warranted to produce 3 banded workers, and safe arrival guaranteed. I can fill all orders for less than one dozen by return mail if desired, price 75c each. Look at my ad. in June Nos. of GLEANINGS. Address JAMES WOOD, North Prescott, Mass. 11tfdb

☞In responding to this advertisement mention GLEANINGS.

100 PURE ITALIAN QUEENS

Now Ready, and for the next 15 days will be sold as follows: Tested queens, $1 each; untested, 70c each; 3 for $1.75; 5 or more, 50c each. All queens bred from select imported and home bred queens. Safe arrival guaranteed.

D. G. EDMISTON,
Adrian, Lenawee Co., Mich.

☞In responding to this advertisement mention GLEANINGS.

Bee-Keepers' Supplies.

WHY ✧ SEND ✧ LONG ✧ DISTANCES?

SEND NAME ON POSTAL CARD FOR MY NEW PRICE LIST TO

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.

Formerly of St. Joe Sta., Butler Co., Pa.
ESTABLISHED IN 1884. 9tfdb

Please mention this paper.

Wants or Exchange Department.

WANTED.—To exchange young Italian queens from imported stock, for pair of black squirrels, pair of ferrets, or thoroughbred female pug-dog. J. W. KEERAN, Bloomington, McLean Co., Ill. 17d

WANTED.—To exchange fruit-trees for currant plants; send prices. J. L. HALLENBECK, 17d Altamont, N. Y.

WANTED.—To exchange pure-bred poultry for white extracted honey. Se'e t breed you want from my circular (sent free) and mail sample of honey. S. P. YODER, East Lewistown, O. 17tfdb.

WANTED.—To exchange new bone and meal mill, cost $5, and ever-bearing strawberry-plants, or nursery stock, for any kind of fruits or honey, or a type-writer. J. B. ALEXANDER & CO., 17d Box 85, Hartford City, Ind.

WANTED.—Golden Queen raspberry roots in exchange for other nursery stock. M. ISBELL, 17-18d Norwich, Chenango Co., N. Y.

WANTED.—To exchange hybrid bees for extracted honey or offers. G. M. WHITFORD, 17d Arlington, Wash. Co., Neb.

WANTED.—To exchange a World type-writer, and books—Short Rules for all Business Calculations, and Driven from Sea to Sea, literary of thrilling interest, for books on bee keeping, political economy, etc., latest editions, or any thing useful. 17d T. K. MASSIE, Concord Church, Mercer Co., W. Va.

WANTED.—To exchange a Stanley 4 L. frame extractor, used only once, and a 150 egg incubator, for a Barnes saw, honey, or offers. 17d J. SINGLETON, 18 Spring St., Brooklyn Village, O.

WANTED.—To exchange a Shipman oil engine, one-horse power, in good order, for 1,000 pounds of white extracted honey, or offers. 15tfdb F. A. SALISBURY, Syracuse, N. Y.

WANTED.—I will exchange sewing-machines, new, and fruit-trees, for honey. Address 15-24db E. PETERMAN, Waldo, Wis.

WANTED.—To exchange Italian bees in Portico L. hives for hives in flat or one-piece sections. A. W. GARDNER, Centerville, St. Joseph Co., Mich. 16-17-18d

WANTED.—To exchange Italian bees and queens for foundation or supplies or other offers. 16-17d W. D. BLATCHLEY, Binghamton, Broome Co., N. Y.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—To correspond with parties having honey, potatoes, peaches, apples, etc., for sale. Prompt attention given to all letters. EARLE CLICKENGER, Commission Merchant, 15-16-17d Columbus, Ohio.

WANTED.—To exchange complete custom steam feed mill, apiary, 1¼ acres land, worth $700.00. A. C FASSETT, Watson, Mich.

FOR SALE.—My apiary of 185 swarms for $4 each. All are in good condition. MRS. C. M. BLISS, 17d Fox Lake, Dodge Co., Wis.

NEW FACTORY.

We will soon be in our new factory, which will be the largest and most complete in the world. We shall make the best of goods at lowest prices. We are ready for contracts for next season's supplies. Write us.

G. B. LEWIS & CO.,
17-tfdb **WATERTOWN, WIS.**
☞In responding to this advertisement mention GLEANINGS.

FOUR DOLLARS

Will purchase six queens reared from our

Hundred-Dollar Queen Mother.

DR. G. L. TINKER says:—"I am not surprised that you value your queen so highly, if all her queen progeny are as fine as the one you sent me." They are.

HENRY ALLEY,
Wenham, Mass.
☞In responding to this advertisement mention GLEANINGS.

MOORE'S STRAIN OF ITALIANS AS HONEY-GATHERERS.

MR. P. .B DICKINSON, Lowell, Ind., says:—"I do not think that you miss what you say about your bees "rolling" in the honey. That queen beats every thing in the yard." See "ad." in another column. 17-d
☞In responding to this advertisement mention GLEANINGS.

GOLDEN ITALIANS.

Full colonies with tested queen, in A. I. Root's Portico hives, only $4.00. Barnes foot-power saw for hive-making, Victor scroll saw. Must be sold before Oct. 20, '90.

B. F. STOVER,
Roscoe, O.
☞In responding to this advertisement mention GLEANINGS.

FOR LIGHT AND DARK FERRETS,

and pure Poland-China Swine, address

N. A. KNAPP,
Rochester, Lorain Co., O.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—Country Store, postoffice and dwelling-house in same building; also 50 Colonies Bees. 17-18d Address S. HEATH, Tidal, Armstrong Co., Pa.

FINE QUEENS CHEAP

I have more queens than I can winter, and will sell about 20 untested at 50 cents each. Part are Carniolan, and balance Italian, from Root's Honey queen. *No disease of any kind*, and no black drones. T. K. MASSIE, Concord Church, Mercer Co., W. Va.
☞In responding to this advertisement mention GLEANINGS.

NOW FOR A BARGAIN.

I will sell cheap my entire stock of good Italian bees, one honey-extractor, and all my bee-fixtures; and if sold soon will sell the honey also, as I wish to retire from the business. MRS. REBECCA KINNEY, 16 19db Bloomsburg, Col. Co., Pa.
☞In responding to this advertisement mention GLEANINGS.

NOW is the time to set **STRAWBERRIES** for next year's fruiting. Write for fall price list of plants and Secrets of Success in Growing Small Fruits; sent free, on application to I. A. WOOLL, 16tfdb Elsie, Mich.

WILL SELL APIARY OF 33 COLONIES IN fine condition (good location). Also 40 acres of land one mile from lively town. Address all inquiries to BOX 98, White Cloud, Mich. 16-17-18d

Black and Hybrid Queens For Sale.

One hybrid queen and a sample of my 4-banded workers for 25 cts. E. C. EAGLESFIELD, Berlin, Wis.

Hybrid queens for sale, 25c each; 5 for $1.00. J. A. GREEN, Dayton, Ill.

10 black and hybrid queens at 25c each. No choice. 3 mismated Italian queens reared from imported mother, 50c each. W. L. MALOON, West Bowdoin, Sag. Co., Maine.

20 black queens for sale at 25c each, or 5 for $1.00. 5 or 6 hybrid (Italian-black) at 50c each; raised this year. AMOS S. ADDISON, Huntington, Putnam Co., Fla.

J. C. SAYLES,

HARTFORD, WIS.,

Manufactures Apiarian Supplies of Every Description. Catalogue Free to All.

3tfd *Send Your Address.*

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS, 50 CTS.

I will send nice young laying untested queens by return mail at the above price, and guarantee safe arrival. Send in your orders at once.

Address F. H. PETTS, Warsaw, Mo.

☞In responding to this advertisement mention GLEANINGS.

QUEENS and SUPPLIES.

Untested Italian queens, each.....$1.00
Tested.... ..... 2.00

Send for price list of bees and supplies.

Address **F. W. LAMM,**
(Box 106.) **Somerville, Butler Co., Ohio.**

Please mention this paper. 24-23db

FOR SALE.

A WELL-ESTABLISHED SUPPLY BUSINESS. Will invoice the stock with a reasonable discount, and no charge for the business. If not sold before the 16th of Sept., will auction off at that time. Have an Armstrong T-tin machine which will make 500 complete T tins in an hour. A fine working Given foundation press; Horse Power and Rodgers saw; Hives, made and flat; Sections, Extractors, etc., and 50 colonies of Italians.

Terms cash or satisfactory security. Will quote prices or receive bids by mail, on the whole, or any article. **GEO. M. TERRELL,**

16d **Jerseyville, Ill.**

(Successor to E. S. Armstrong.)

FOLDING PAPER BOXES.

CRAWFORD'S SECTION CARTONS ARE THE BEST.

Send for free sample and price list, and find out the reason. A certain fact has come to our knowledge that is worth dollars to *you*. Send for it.

A. O. CRAWFORD, S. Weymouth, Mass.

12tfdb Please mention this paper.

THE CANADIAN

Bee Journal	*Poultry Journal*
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	*75c. Per Year.*

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.

☞Please mention GLEANINGS. 6-11db

MUTH'S HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS, TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.

PERFECTION COLD - BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON, Cincinnati, Ohio.*

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

BEES

SEND for a free sample copy of the **BEE JOURNAL** — 16-page Weekly at **$1** a year—the oldest, largest, and cheapest Weekly bee-paper. Address

16tfdb **BEE JOURNAL, Chicago, Ill.**

Please mention GLEANINGS. 1tfdb

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

☞In responding to this advertisement mention GLEANINGS.

☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES,** write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.

☞In responding to this advertisement mention GLEANINGS.

HOME

EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. **THOS. G. NEWMAN & SON,** 246 East Madison Street, - - CHICAGO, ILLS.

KIND WORDS FROM OUR CUSTOMERS.

The queen and bees you sent arrived in good condition, after their long journey. In my estimation they are worth twice as much as they cost.

St. Johns, Ariz., July 3. C. P. ANDERSON.

BUCKWHEAT IN BLOOM LESS THAN 30 DAYS FROM SOWING.

The buckwheat I bought of you was sown on the 20th of June. It is now in bloom, and the bees work on it from morning until night. L. C. BENTON.

Ludlersville, Md., July 19.

QUEEN RECEIVED AND SUCCESSFULLY INTRODUCED.

The queen was received all right and in very good order. I pinned her on the combs the 4th, and she stayed there until the 6th. I lost the cage, and she crawled down the combs all right; and on the 7th she had laid a dozen or so of eggs. The work was done according to the A B C. G. C. LEWIS.

Marvinville, Ark., July 7.

GLEANINGS AS AN ADVERTISING MEDIUM.

I think this is the fifth or sixth time I have advertised in GLEANINGS, and I have never yet failed to get plenty of replies to my "ad." I am all sold out now—needn't insert again. I. FERRIS PATTON.

Laurenceburg, Ind., Aug. 20.

[So it seems that GLEANINGS is not always a failure, after all. In looking up the advertisement we see that friend P. advertised to exchange canary birds for Italian bees or queens. Now, very likely among the readers of GLEANINGS there are more who have Italian bees to trade or swap than who wish to buy bees or queens.]

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—White, selected, 1-lb., 18@20; 2-lb., 17@18; white, as runs, 1-lb., 16@17; 2-lb., 15@16; mixed, selected, 1-lb., 15@16; 2-lb., 14@15; mixed, as runs, 1-lb., 14@15; 2-lb., 13@14; dark, selected, 1-lb., 13@14; 2-lb., 12@13; dark as runs, 1-lb., 12@13; 2-lb., 12@12½. Glassed sections usually sell 1c less. Extracted, white, small pkgs., 12c; 60-lb. tins, kegs, or barrels, 8@9; mixed, or amber, small pkgs., 9; 60-lb. tins, kegs, or bbls., 7@8; dark, small pkgs., 8; 60-lb. tins, kegs, or bbls., 6@7. Receipts of honey light, also demand being early; but some attractive lots bring good prices, owing to the light receipts.
H. R. WRIGHT,
Aug. 20. Albany, N. Y.

NEW YORK.—*Honey.*—New comb honey is now arriving and finds ready sale. We quote: Fancy white, 1-lb. paper boxes, 16@18; fancy white, 1-lb., glassed or unglassed, 15@17; fancy white, 2-lbs., 14@15. Off grades, 1-lbs., 13@14; do. 2-lbs., 12@14. Extracted, basswood, 7½@8; California, 6½@7; Southern extracted, 65@70 per gallon; Southern strained, 60@65.
Aug. 25. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

KANSAS CITY.—*Honey.*—Receipts of honey very light at present; the demand is fair for comb. Fancy 1-lb. white-clover, 14@15c; same, 2-lb., 11@12. Dark, 1-lb. comb, 12@13; same, 2-lb., 9@11. Extracted in very little demand at present. *Beeswax*, 25@27.
Aug. 20. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

MILWAUKEE.—*Honey.*—This market now offers good encouragement to shippers of honey. The old stock of white comb is all gone, and new choice 1-lb. sections will meet with a sweet reception. Will now quote: 1-lb. white, choice, 15@16; 1-lb. white, good, 14@15; 1-lb. white, fair, 13@14; 2-lb. white, choice, 13@14. Extracted in bbls., white, choice, 7@8; in kegs and tin, choice, 8@8½; in bbls., dark, 6½@7½. *Beeswax*, 26@28, and 30.
A. V. BISHOP,
Aug. 23. Milwaukee, Wis.

BOSTON.—*Honey.*—New honey is commencing to come in, and we are selling at 18c. We are advised that the crop is short, but thought it best to start at 18c and work it up a little as the demand increases. Extracted, 7@8.
Beeswax.—Sold beeswax to-day at 30c for fancy yellow.
BLAKE & RIPLEY,
Aug. 15. Boston, Mass.

NEW YORK.—*Honey.*—Of comb honey there is neither old nor new, in this market. We have inquiries repeatedly for fancy 1-lb. new; and 14@15c could be realized probably. Common strained, Southern, 60c per gal.; extracted, 65@75. Palmetto and mangrove, well ripened, 7@7½ per lb. California, 6½@7. *Beeswax*, scarce, 29.
Aug. 21. F. G. STROHMEYER & CO.,
New York City.

ALBANY.—*Honey.*—We quote fancy white 1-lb. sections, 18; medium, 17@16; buckwheat, 12. Inferior grades and glassed sections, from 1@2c less than above price. We have received 22 half-bbls. of extracted honey which the consigner wishes held at 7c per pound.
CHAS. MCCULLOCH & CO.,
Aug. 20. 339 Broadway, Albany, N. Y.

CINCINNATI.—*Honey.*—Demand is good for all kinds of honey. All of last year's crop is sold, and new arrivals don't keep pace with the demand. We quote 14@16 for best comb honey, in the jobbing way, and 5@8 for extracted honey on arrival.
Beeswax.—There is a good demand, at 24@26, for good to choice yellow.
CHAS. F. MUTH,
Aug. 26. Cincinnati, Ohio.

NEW YORK.—*Honey.*—The comb-honey market is in fine condition—never saw it better, as the old honey is completely sold out. We quote the following; can sell at the following prices: Fancy white, 1-lb., paper caps, 16@18; fancy white, 1-lb., glassed or unglassed, 15@17; fancy white, 2-lb., glassed, 14@15; off grade, 1-lb., 13@14; off grade, 2-lb., 11@12.
Aug. 25. THURBER, WHYLAND & CO.,
New York.

KANSAS CITY.—*Honey.*—Receipts of comb honey light; demand good at 14@15 for 1-lb. white; no 2 lb. comb or dark comb in the market. Very little demand for extracted at present. We quote white, 6½@7; dark, 5@6. *Beeswax*, none in the market.
Aug. 21. CLEMONS, MASON & CO.,
Kansas City, Mo.

CLEVELAND.—*Honey.*—Very little honey coming into the market now. White clover and basswood honey in 1-lb. sections sells readily at 15@16c.
Aug. 19. A. C. KENDEL,
Cleveland, Ohio.

ST. LOUIS.—*Honey.*—We have sold thus far of this season's crop about 18 tons, and find trade excellent. We quote: Extracted, in barrels, 5½@6; cans, 7½@8. White clover, comb, 1-lb., 13½@14½; inferior, 11@12. *Beeswax*, prime, 27½.
D. G. TUTT GRO. CO.,
Aug. 20. St. Louis, Mo.

DETROIT.—*Honey.*—New comb honey is selling at 14@15c; very little in market. Extracted, 7@8c. *Beeswax*, 26c for prime.
M. H. HUNT.
Bell Branch, Mich., Aug. 21.

FOR SALE.—50,000 lbs. of extra fine sage honey in 60-lb. tin cans.
MERCER & SONS,
Ventura, Ventura Co., Cal.

FOR SALE.—400 or 500 lbs. of white-clover honey, put up in 12-lb. shipping-boxes, glass on two sides, for $1.75 each. Three 5-gal. tin cans, two in box, of extracted white-clover honey, holding 5 gals., which I offer for $5.00 each, put on board cars.
R. GAINES ROBERTSON,
Box 774, Marshall, Saline Co., Mo.

FOR SALE.—Fine white-clover and blue-thistle comb honey. 4¼x1⅞ sections, with separators; full weight, and fine goods. I can pack in crates of 120 lbs. each, so as to go safe by freight. I want 17c for it here. H. W. BASS, Front Royal, Warren Co., Va.

FOR SALE.—About 500 boxes of white-clover honey, in 1-lb. boxes; price 13c on board of cars.
L. D. WORTH, Reading Center, Schuy. Co., N. Y.

FOR SALE.—2000 lbs. well-ripened extracted honey.
W. H. S. GROUT, Kennedy, Chaut. Co., N. Y.

FOR SALE.—1000 lbs. of choice extracted honey.
F. W. MOATS, Brunersburg, Ohio.

FOR SALE.—Alfalfa honey, comb and extracted, quantities to suit. Address CHAS. ADAMS,
Greeley, Ohio.

FOR SALE.—2000 lbs. extracted clover honey in 10-gal on ash kegs; 120 lbs. net, at 10 cents. 2000 lbs. comb honey in 1-lb. sections.
M. ISBELL,
Norwich, Chenango Co., N. Y.

FOR SALE.—Forty-five 24-lb. cases of white honey, first quality, at 15c per lb. cash, on board cars.
C. & F. OLMSTEAD, East Bloomfield, Ont. Co., N. Y.

WANTED.—One or two thousand pounds of nice comb honey. Write, giving amount on hand and price wanted.
A. D. ELLINGWOOD,
17tfdb Berlin Falls, N. H.

WANTED.—White comb and extracted honey; state price, package, etc.
B. WALKER, 17tfdb
Capac, Mich., or Prairie du Chien, Wis.

ARE YOU GOING

—TO ATTEND THE—

MICHIGAN STATE FAIR?

If so, please call at **"Bees & Honey Hall,"** and examine the "Golden Italian Bees," on exhibition by **JACOB T. TIMPE,** of **Grand Ledge, Mich.** For prices on Queens see Oct. 1st, GLEANINGS. Don't forget to call while at the **FAIR.** I shall also have other races on exhibition. Do not fail to see them.

Vol. XVIII. **SEPT. 1, 1890.** **No. 17.**

TERMS: $1 00 PER ANNUM IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

SELLING SECRETS, ETC.

DR. C. C. MILLER GIVES US SOME FACTS FROM THE STANDPOINT OF A PHYSICIAN.

Friend Root:—It is so many years since I had any thing to do with the practice of medicine that I hardly count myself one of the medical profession; but I think I can help you a little to understand why little or nothing is said by them about what you evidently consider a fit subject for ventilation—the Dr. A. Wilford Hall matter. In the first place, his case does not stand out as prominently to their minds as it does to yours. It is only one of a hundred. Indeed, in some respects it is of a better type than common; for at a guess I should say that in many cases the man who pays $4 for the secret gets the worth of his money, or at least is not harmed by it. I have just now picked up the first religious paper that comes to my hand—and it is one of the best of its class—and looking at its advertising columns I find a medicine offered as a sure cure for consumption. I very much doubt whether any one ever was or ever will be cured of consumption by this medicine; and I suspect that it may do harm in a great many cases, where the Hall treatment will not. These things are common. You see them every day, and every day the people are paying out a good many four dollars for things worse than the Hall business. If a physician should try to expose every thing of this kind he would have his hands full; and, moreover, people would say he had an ax to grind in so doing. Good honest people are found in plenty who believe in such things, and resent any word said against them. A somewhat similar case came within my knowledge in the sphere of bee-keeping. A certain party had been doing a business of some extent, selling at $20 a colony of bees not worth half that, and other things as bad or worse. I felt that something ought to be done to prevent people being defrauded, and I wrote some very plain words about it for an influential publication. Would you believe that the good editor, with misdirected charity, squelched the thing, saying that he thought the party was doing better—a kind of "better" that every thief uses who changes his tactics whenever it makes him safer from detection? Perhaps Dr. Hall will do better—take $3 instead of $4 whenever he thinks he can make more by so doing.

But there is another reason why physicians don't say any thing against Dr. Hall; and that is, they don't know any thing about his treatment. Every one who gets the secret agrees to keep it: and, however strongly I may think Dr. Hall a humbug, if I don't know positively what his treatment is I am not wise to say any thing about it. I received from him an offer of the secret, practically free, on condition of my keeping it secret, and I suppose it is his tactics to offer it in the same way to all physicians. This helps to keep their mouths shut, and some among them will act as "agents," thus increasing his receipts.

I admire your pluck, friend Root, in attacking error; and whilst there will always be those who are anxious to be humbugged, I suspect your words may be the means of saving to some their four dollars. C. C. MILLER.

Marengo, Ill., Aug. 16.

Friend M., very likely you are right. This makes the matter sadder still. Is it indeed true, that the people of our nation—those who are out of health, and possibly those who are at the same time overworked—are continually investing vast sums of money for something that does no good whatever, and oftentimes, as you state it, a positive harm? Why can't our experiment stations furnish some facts for the people out of health, just as they have furnished facts to the farmer who has been in the habit of paying over his hard earnings to quacks and swindlers? It seems that this matter of medi-

cine and medical treatment to the human family is as important as that of protecting our domestic animals from the errors of quackery. As an illustration of current superstition, I want to mention the following: A few days ago a very good and intelligent farmer, who is at present taking care of our cow, came to my wife for some salt and pepper. Then he wanted some turpentine. He said the cow had got the "wolf-tail," or something that sounded like it, and that the only thing to do was to split the end of her tail and put in some salt and pepper. Then some turpentine must be rubbed between her horns, and she would be all right. And poor bossy had to submit. When I heard of it I began to remonstrate. The man who drives the market-wagon, and who, by the way, has for many years *taught school* in winter, joined in, and declared that splitting the cow's tail was "orthodox" and right. He said he had a cow in that same fix, and a good farmer told what the trouble was as soon as he saw her, and the treatment cured her *right straight*. Now, the probability is that the poor cow had been overfed, and that is why she could not eat her supper. If simply let alone, she would have come out all right. The question that occurs to my mind in such matters is this: Who in the world had the wonderful *acuteness* to *discover* this remedy? Through what process of study, invention, and *reasoning*, did *any* human being arrive at the *astounding fact* that *salt* and *pepper* (nothing else will answer, mind you, and one alone would not answer—you must have both), are needed? Furthermore, the application must be made to the *end* of the cow's *tail* after it is split open. Then turpentine (nothing else *here* would answer, mind you) must be applied between her horns. In the present case, of course no money was wasted; but if it is really true that the laboring classes of our land are continually paying out a large part of their earnings in a blind and senseless way, and for that which does little or no good, is it not a sad thing to contemplate? By the way, Dr. Hall has occupied a large space in his periodical for August, to call myself and Dr. Kellogg names. He has, however, paid me so great a compliment in putting me side by side with so celebrated a physician and author as Dr. Kellogg, I feel well enough pleased to let the matter drop where it is. Yes, it is probable that GLEANINGS *has* saved whole neighborhoods from investing their money. I hear of it continually from agents who have, like Othello, found their "occupation gone" because somebody got hold of a copy of GLEANINGS, and carried it around, before the agent got in his fingers the four dollars from each family. Now, please do not gather from the above that I do not approve of Dr. Hall's treatment. I feel sure it has done and will do much good; but it is not his invention, and he has no legal nor moral right to receive money for something that does not belong to him.

A GLIMPSE OF FLORIDA IN JULY.

AN APIARY UNDER THE GRAPEVINES AND PALMETTOES.

Friend Root:—I send you by this mail a photograph of a corner in my bee-yard, taken from a window in my bee-house. My object in taking the picture was to give Prof. Cook a photo of the cabbage palmetto in full bloom, but I haven't done it. This picture was taken last Thursday, July 17, to test my plates, preparatory to taking some palmettoes when they come out in full flower, as I expected them to do in three or four days; but as the buds began to blight and drop immediately, from the effects of a severe drouth we have been having, I made this negative answer rather than to score an entire failure. The trees in this picture would have shown double their present bloom if they could have perfected the buds. I cut a sprig of bloom from a neighboring tree, however, and, setting it on the ground beside me, held its top over my head. This will give you an idea as to its size and form.

To my left you see a section of one of my bee-sheds, covered by scuppernong grapevines. This family of grapes needs but little pruning, and grows enormously; and bears by the hundred bushels in some cases. You will notice that they are going over the palmetto-trees, shutting off the view beyond. They make almost a perfect shade for bees; and the Thomas variety is one of the sweetest grapes known. Having a rather thick skin, and growing in bunches of 4 to 12 berries only, they can never compete with the Delaware and other fine bunch grapes for table use, though many prefer the Thomas to eat out of hand. The berries are very large, often measuring 3¼ inches in circumference, on thrifty vines, and no insects or diseases trouble them, though the mocking-birds are very fond of the Flowers variety, which is enough smaller so that they can handle it.

This year, for bees, has been an abnormal one. The spring flow was very light on account of dry weather and the burning of the woods. Not a normal swarm was reported during the usual swarming season from February to the middle of May, and considerable feeding had to be done in April to prevent loss of colonies. I had many colonies that had plenty of honey in the hives to carry them through, but I fed all, as is my custom, in April, to prepare the bees for the summer flow. Probably my bees were in better shape than almost any others here when the flow commenced. I started the season with 93 colonies; worked 92 for extracted honey, and have taken 15,000 lbs. to date. I shall probably make it 8 tons by the time I get through this round of extracting. I have had 22 swarms right in the mangrove-honey flow (very unusual), and have had my bees draw out 400 frames of foundation during the past four weeks.

Friend Poppleton caught 25 colonies of black bees from the pine woods, where they had a little better spring forage, just at the beginning of the mangrove bloom, and he has taken ten barrels of 400 lbs. each from them. I think he had one swarm which absconded. The rest of the bee-keepers have been quite successful about here, and are feeling in good spirits. The quality of the honey is even finer than usual this season, as there was very little besides the mangrove crop gathered, and the weather has been very dry throughout the whole flow. My own crop has gone through my evaporator as usual, and is A No. 1 in quality.

Having never made a report of my crops for 1888 and '89, I will here state that, in 1888, with about 100 stands I took 5500 lbs.; and in 1889, with 96, spring count, 4500 lbs. Both years were

W. S. HART'S APIARY, HAWKS PARK, FLORIDA.

considered very poor, and my average was as high as was made, I believe, while some bought honey of me to feed in the fall, having failed to get enough to carry the bees through.

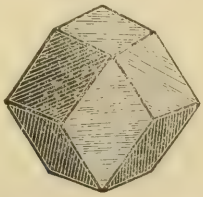
Hawks Park, Fla., July 22. W. S. HART.

Friend H., we are exceedingly obliged to you for the magnificent picture you have given us. We congratulate our artists on having copied the photograph so well. The palmettoes have always been a class of vegetation wonderfully attractive to me, both in my trip to New Orleans and the late one to California; and I assure our readers that no picture can exaggerate the beauty of vigorously growing specimens of many of the varieties. Friend H., we are very glad to know that you have made so good a report during this season, while so many have given us such discouraging accounts. If your hives are not Simplicity, I should judge they come pretty near it, from their looks in the picture. What a pleasant place that must be to work! I suppose the ground under the trees and around the hives is sandy and clean, as it usually is in the home of the palmetto.

A GLASS PAPER-WEIGHT SHOWING THE MATHEMATICS OF THE HONEY-COMB.

A TRUE DODECAHEDRON.

We have finally succeeded in getting a thousand glass paper-weights, such as are described in our heading. Before we could get them, the order had to be sent to Germany to have them made, and it has taken a little over a year and a half to get them out. The adjoining cut, taken from the A B C book, shows what they are like.



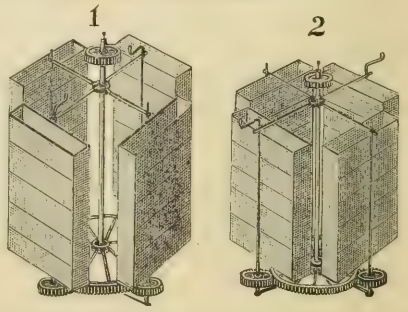
A TRUE DODECAHEDRON.

This beautiful figure has exactly 12 sides; 6 of the 12 sides are exactly on the angle of the cell of the honey-comb; and the 12 lozenge-shaped sides are exactly the shape of the figure the bees make in building perfect cells. The paper-weight is a little less than 1¾ inches through its longest diameter. It is made of beautiful crystalline glass, and is ground so that it sparkles like a huge diamond. They are the prettiest objects that can be found to grace a writing-table, or even a center-table or ornamental bracket. The usual price is 50 cts. each. By having them made to order in thousand lots, we are enabled to sell them for 20 cts.; 2 for 35 cts.; or in lots of 10 or more, 15 cts. each. If wanted by mail, the postage will be 3 cts. each, or we will furnish one as a premium to everybody who sends us a subscription to GLEANINGS from some one who has never taken it before. This beautiful figure will be of interest to bee-keepers, as it exemplifies and illustrates so clearly the problem the honey-bee solved in making this lozenge-shaped figure with its angles so mathematically exact. In giving lectures, or even in giving a talk on this wonderful problem, this little figure illustrates the subject most beautifully. See the A B C book for full particulars.

ANOTHER REVERSIBLE EXTRACTOR.

THE REVERSING DONE AUTOMATICALLY WHEN UNDER FULL MOTION.

There is a demand among bee-keepers who run business on a large scale, for a high-grade extractor that will extract the combs on both sides without stopping to reverse the baskets. Some attempts have been made to get up such an extractor in this country, but so far they have not been a success, because they tried to reverse the baskets *against* centrifugal force. I send drawings of the inside gear of a new extractor which reverses the combs by *centrifugal force while going at full speed.*



MCINTYRE'S PROPOSED REVERSIBLE EXTRACTOR.

Fig. 1 shows the extractor ready to receive the combs full of honey. When the baskets are full you take hold of the little crank on the axle of the basket and turn it half way round, when the baskets will appear as in Fig. 2. Turning one basket turns all at the same time. A pin drops into a slot in the hub of the center-wheel, which holds all the baskets from turning out again until the first side is extracted. When ready to reverse, this pin is drawn out of the slot by means of a little rod running up in a groove in the center-axle, and terminating in a knob above the gearing. The combs, being heaviest next the top-bar, will cause the baskets to start, when they will all fly out as in Fig. 1, and extract the other side. It will not be hard to stop when all the honey is out of the combs; but a brake can be put on if thought necessary. It will have to be geared, because the radius distance is much less than in the old-style reversible, even when the baskets are out, as in Fig. 1. It will require a can about the same size as the Stanley extractor. The large wheel in the center is 11 inches in diameter, and the wheels on the axles of the baskets are 4 inches in diameter. The baskets should be 1¾x10x17½ inside for the L. frame.

The readers of GLEANINGS will understand that this extractor has never been manufactured. The figures are drawn from imagination; scale, $\frac{1}{16}$ for the L. frame. I am not in the supply business, and never expect to be. If any one should manufacture them, and find them a good thing, a complimentary extractor will pay the inventor for the idea. J. F. MCINTYRE.

Fillmore, Cal., July 1.

The idea, friend M., is quite ingenious. Of course, it remains to be seen whether it will work as well in practice as it does on paper. Yes, there is a demand for an extractor for large honey-producers.

AN INTERESTING LETTER FROM THE OLD WORLD.

TEMPER OF THE EGYPTIAN AND OTHER ORIENTAL BEES.

Mr. Root.—In GLEANINGS for May 15, you say you are surprised that I say nothing about the vindictiveness of the Egyptian bee. I think most bee-keepers will agree with me in what I am going to say. In the first place, the bees I saw in Egypt, and some in very considerable apiaries, were very quiet, not to say docile, though we did not handle them; all we did was to walk in front of the hives and look in at a hive. They showed no more disposition to sting than our Palestines. I fully agree that our Oriental bees—Cyprians, Syrians, Palestines, and Egyptians, are more difficult to handle, especially for the beginner, but they *can* be handled after all; and when we remember it is not more than ten years since these races have been imported largely (except the Egyptians) there has hardly been time enough to weed out the most vindictive, and strike just the good qualities required—docile, prolific, large, yellow-tailed. Mr. F. Benton and myself laughed one day at a man desiring all such qualities. It is rare to find all these combined. I know some one will say, "Why did you not do it?" Because, in the first place, Benton was the only man I know of who worked to any extent in the raising of Oriental queens; and although he may have weeded out the worst, he never stayed long enough in one place to find out all the desired qualities; and then, again, a nucleus may be handled without smoke and veil; but as soon as this same nucleus has grown to be a full-sized colony, things take another turn, and the bees seem very angry and almost impossible to handle, if all necessary precautions are not taken. A full-sized colony is never to be handled without smoke, though you can a nucleus. A few puffs from the smoker will perfectly subdue the same colony at one season of the year; while in another, a good Bingham is necessary to blow almost continually while manipulating.

It is only four months since I saw the first Bingham smoker, which I received from the Home of the Honey-bees; and it is only half the work to subdue our bees during the orange-blossom honey-flow, when with us the bees are wildest. We could not work them at all without veils while extracting, and it was very difficult to do so even then without gloves during the orange-blossom season; but we do it, and extract orange honey and feel well protected all the while.

MOVING BEES WITH CAMELS.

In May and June we moved our apiaries to the land of the Philistines, in the tribe of Dan. Owing to the scarcity of thyme in one place, I divided my apiary, consisting of 100 hives, into three. They are about 1½ miles apart, very near the village of Ekron. You know the camels kneel down, and the hives are put on their backs without a stir from the camel, and then the clay hives, or those made of mud, as in Egypt, are exceedingly strong, and would bear any thing. The only danger is the bees getting out. We also move all our bees on camelback, and I suppose we have just as much or even more trouble than you have with horses and wagons. When it is time to move we put a spacing rack in the bottom of the hive, and two in the center, made so as to hold the frames below as well as the frames of the super. There are 13 frames in each hive and in each super. Then the super is put on and fixed on both sides by clasps, the clasp being screwed on the super, and a hold for the clasp is screwed on the hive. A quilt is now put on, and the cover screwed on. The hive has ventilating holes covered inside by wire screen. In years gone by we moved to the mountains, and it generally took us two or sometimes three nights to arrive at our destination. Only two nights the camels had to go faster, and we traveled an hour or so by daylight, which plan we left altogether, on account of some terrible adventures we had to undergo.

One evening in the last decade of June, on Thursday, we started from Jaffa with 13 camel loads of bees (104 hives). The hives were all supposed to be well arranged; and with a good supply of all necessary implements we followed on horse and on donkey. We lost a good deal of time loading. The night was far advanced; and with the slow movements of the camels, morning came before we had got far enough, so we decided to continue by daylight. I shudder when I think of it. Somehow or other one hive got loose, and every one had to flee for his life. The camels got wild; some threw off their loads; the hives were tumbling about; my friend and myself were running about with open knives, cutting ropes, and helping the poor animals away. When all the animals were galloping away in the distance, together with their drivers, we had to look out to ourselves and hives. We were stunned with stings, being unprotected. Our veils, gloves, smokers, etc., availed us very little, for not only had all the hives to be lifted up from the ground, but a good many were cracked, and bees were furiously streaming out; but we had also to open the hives; for in the boiling sun, surely they would have been suffocated by night. It was not before four o'clock in the afternoon when the bees had forgotten about the terrible events of the morning, and we had rested, and again neared the hives with "fear and trembling." We repaired all the damages, and started again to loading camels, the stung camels being very fidgety. After a good deal of tying, screaming, howling, and what noises imagination alone can conceive, we again drove fast in the direction of Jerusalem. We arrived in this town at daybreak; but we had to go beyond Bethlehem, four miles distant. We decided to go, not having had enough of our lesson the day before. It was Whitsunday morning, and we had hoped to arrive early enough to take our rest. We hurried on. The camels were walking behind each other, when we had just passed the convent of Elijah the Prophet, a place held in great veneration by Christians and Moslems. In the rock is the place where the great prophet slept when he fled from Ahab, king of Israel; for from the holiness of his body tradition made him sink into the rock, as though it would have been a bed of down. No Christian passes but makes the sign of the cross, and stoops down to kiss the hallowed place. The road is now closed in by high stone walls, to prevent animals or people getting into the olive-yards belonging to the convent. The last of the camels got frightened and leaped toward its fore-camel, and a hive got loose. The bees streamed out furiously, and attacked the camel, then the one before it; but the other eleven could flee together with their burdens. I slipped on a veil, handed the donkey to my brother, and with open knife I ran for the camels' lives. The ropes tying the hives were cut; they fell off, and only 16 hives were now thrown on the ground. My brother put the animals hardly 200 paces away, and came running to help me. The camel got countless stings and galloped off. When we had set up the hives we just climbed the walls, jumped into the olive-yards; and, folding all our clothes faster, we had to remove the bees from the main road. The Christian

inhabitants of Bethlehem and Betjala were going in numbers to Jerusalem, while French pilgrims were on their way to Bethlehem. Our animals now got loose and galloped toward the bees. The horse galloped past; but Grey, finding the upright hives a good opportunity to rub off the bees, roused the interior bees more and more. I jumped back and tried with all my might to send him away. Beating and pushing availed nothing. He was now literally covered with bees; and although only five minutes had elapsed, he could hardly move on. We now got him far enough to put him near the stung camels, and had now to carry the hives over the walls to clear the road. They weigh between 70 and 80 lbs. per hive. We managed to clear the road, but the bees were still more furious; and with veil and thick leathern gloves on we stopped the passers-by, one at either end of the lane. Some protested, some asked why, and many, in fact, were frightened by our strange looks. The most of them could not understand the trouble. We had to call out in all languages at the top of our voices, "Bees! danger! destruction! get away!" and gesticulating meanwhile to indicate what we meant. They had to turn round the olive-yard, taking considerably more time. One Turk could not understand the trouble; and although I could find a few Turkish words, he insisted on its being the Sultan's road, and I had no right to interfere. But the bees interfered with him, and he understood that language better, for he turned round and fled.

It was late in the afternoon. The bees had quieted down so that we allowed first one and then all to pass. I was expecting some government notice, but it passed unnoticed. We arrived at our destination. The donkey died two hours after he got stung. The first camel died a fortnight after. I could not bear to hear anybody shouting, and for many weeks I started up from sleep by imaginary sounds, as knives, camels, bees, and such implements as we had to protect ourselves. It was very ruinous, those dreadful adventures. It decimated the bees, unnerved us, and several animals were killed. Happily we found good pasturage in this vicinity, and it is here I now move to every year. It takes the camels only one night. At daybreak they put down their loads; the hives are put in rows, and the bees not yet roused, so the hives are opened, and all goes on peacefully, of course. In the evening, while loading, the bees now and then got out by some crack, or badly fitting super. It was then quickly unloaded and rearranged. Stinging is, of course, a secondary matter, for both man and beast get their share; but these disagreements will have to be overcome as long as we have hives and supers; and there comes in a question. I hope some of our bee-keepers will tell us their opinion: Will a hive give the same amount of honey if the 26 combs are on a level instead of being on halves above each other? or if a frame is made bigger, so as to give 15 frames the same amount of square inches in comb.

PH. J. BALDENSPERGER.

Jaffa, Syria, July 24.

Friend B., I believe you have had more experience, or at least more disastrous experience, in moving bees, than any one else among us. If any reader of GLEANINGS has ever had any thing to match this, let him stand up and speak. Having a row with bees and horses in your own country, where you can use your own language, is surely bad enough; but among a traveling people, who speak all languages, who can imagine your worry and trouble? I think, if I had been you, I should have declared, with considerable vehemence, that I never wanted to transport bees any more. I can not help pitying the poor camels. I suppose you do not have any humane society around there to arrest you for cruelty. By the way, how much is a camel worth, say compared with our horses? Friend B., I know exactly how you were unstrung about the time you dreamed of the *melee* as soon as you went to sleep. Our new east and west railroad has just been invading my market-garden grounds. They go entirely through it the longest way; and the cut they make is from 6 to 12 feet deep. I made friends with the bosses at the outset; but the teamsters, a great part of them, are a reckless, blasphemous lot. I tried a little to stem their torrents of profanity; but when the boss got mad and swore too, it was pretty up-hill work. Finally when a dozen teams with drivers and helpers invaded our grounds, and threatened to spread their poor clay soil from the deep cut all over my enriched land, I fought for my property and my gardens. Of course, I had plenty of helpers, and our own teams kept just before them moving the rich surface soil out of their way. But when night came I was not only thoroughly tired, but I caught cold by being out in the rain without any coat. I woke up in the middle of the night, with a headache; and as soon as I tried to sleep, the curses of the teamsters, the rattling of the scrapers, and the general clamor, followed me in my dreams until there seemed no peace, either awake or asleep. I opened my eyes wide and tried to consider the matter with reason; and when that did not stop the noises I tried to drown them in sleep. Then I began to think how thankful I should be if I were once again just free from that racking pain in my head. And I began wondering if I had not forgotten, in the many long years, of the blessing of *health*, and the ability to sleep *sound* every night. I did finally thank God then and there, and in a little time peace stole over my troubled senses. In the morning I awoke, refreshed and free from pain, and nothing remained but the memory of a couple of hours' misery in the middle of the night. *Your* mention of starting in your sleep reminded me of it.

AN A B C SCHOLAR'S EXPERIENCE.

A LADY WHO HAS HAD SUCCESS WITH BEES.

I sent to you for two Simplicity hives about two years ago. I have had six more made, and now have them filled with bees. I had three swarms last month. There is little or no white clover here, but lots of willow, plum, grapes, and basswood, in the ravines close by. Then the prairies are full of different varieties of goldenrod, besides the immense plots of corn and pumpkin blossoms grown by the farmers; also the buckwheat. There are only two people besides myself who keep bees here. One is a farmer about two miles out. He has only box hives, and his bees swarm a great deal, but he

gets no surplus. He turns a small box over the hives for the surplus, and has a small hole through the top of the hive for the bees to pass to it, but the temperature there is so low that the bees do not even go into it to rest. He had three large swarms come out nearly all at once, and they all clustered together. After hanging about half an hour they took French leave, and went into a hollow scrub oak in the ravine near his house. He told my husband, about two weeks after they had swarmed, that he might have them for $1.00, as he did not know how to get them out. So we went at once, and my husband cut down the tree and split open the trunk, which was about a foot in diameter, and ten feet long, and all hollow. They had about 15 lbs. of lovely honey. I took out some of the comb, and all the brood; and having a Simplicity hive at hand we fastened all in, took it home, put a 30-lb. surplus box on top (without any bottom to it), putting starters of foundation in top, and in about three weeks it was filled with white basswood honey. I took it off and put another on, which they again filled. So you see our dollar was well invested.

I winter my bees in the basement of our barn. We had one end partitioned off for them, where it is dark and quiet. The temperature is apparently about right for them. I put chaff cushions on top. I sold a colony this spring for just what I paid for them—$6.00.

Clark's smoker works all right, but I seldom use smoke in opening hives at this time of the honey season, for the bees pay no attention to me. It does not take to exceed ten minutes to move the frames from one hive to another, for I keep my hives perpendicular, and the combs very seldom require any attention in straightening.

I do think that bee culture is a delightful occupation for any one. It is not too laborious for a lady; besides it is such a pleasing study, and the returns are very large in comparison to the outlay.

I began with two colonies two years ago. They were in old boxes when I got them, so I just let them swarm (got 3 swarms), and sold the old colonies for what I gave for them. So you see I am considerably ahead.

MRS. A. C. MONAGHAN.

Gary, South Dakota, July 1.

CLEANSING FOUL-BROODY HIVES, ETC.

FRIEND DOOLITTLE TELLS HIS OPINION AND EXPERIENCE.

A correspondent writes: "I have had foul brood in my apiary, and, as far as I know, I have eradicated it by the plan given by the late M. Quinby, which is similar to that recommended by D. A. Jones, of Canada. The bees were all placed in new hives, and now I want to know what to do with the old ones, so that I can use them again another year, for I do not feel able to lose them."

In replying, I beg leave to answer this question through GLEANINGS, as such answer may be of use to some of the readers besides the correspondent. The plan I used on the most of my hives, when I had foul brood during the seventies, was to scald the hive by plunging it all over in boiling water, in a large kettle which was used on the farm for cooking food for the hogs, heating water for butchering, etc. The hives were put in first and scalded, and afterward the frames of combs, thus scalding the frames and making the combs into wax at the same time; for as I made all of my frames by hand then, I thought I must save them. However, in these days of machinery I do not think that it would pay to bother with the frames, for this scalding process makes them untrue and in poor shape for use again, so that new frames are much the cheaper in the long run. Later on, a bee-keeper living several miles away called me to his apiary to see if he had foul brood. I found it in several of his hives, and told him how to treat it. After he had cured it he scalded the hives by pouring water from a boiling tea-kettle on to the inside of the infected hives, and no foul brood was the result afterward. If you are sure that the hot water hits every nook and corner of the hive, I do not know why this plan would not answer where nothing holding boiling water is at hand large enough to put the whole hive in. The first would be the safest, however. Some claim that the hives do not need scalding or doing any thing else with them, if they are allowed to stand outdoors exposed to the weather through one winter. They say they believe that the freezing and thawing of one winter is amply sufficient to destroy all the spores or germs of foul brood about any hive. I should be inclined to go slow on this, trying only one or two till I had proved for myself that there was no danger from such hives.

While I am on this subject of foul brood I wish to especially emphasize what has been lately said in our bee-papers against sending samples of supposed foul brood to different bee-beepers for their judgment in the matter. Only lately I received such a sample, which might have worked me untold injury, if not some one else near the postoffice. Being very busy that day I did not go for my mail till late at night; and as a friend brought out the mail for me it was placed in the buggy without much thought, save to take it home. I came near leaving the mail in the barn with the buggy, but finally thought to take it to the house. In taking it out in the dark, I felt a package in a dilapidated condition; but not wishing to strike a light it was left on the table till morning. Imagine my feelings when I found, the next morning, a package of torn and soiled paper, saturated through in places with thin honey and mashed brood, giving off a scent while being undone which told me at once what it was. I was not long in consigning it to the fire and thoroughly washing every place where it had touched. As it was a time of scarcity, if I had left it in the barn, as I came near doing, in all probability the bees would have found it before I went out to feed the horse, as I do not feed him early, feeding but twice a day. Then the postoffice window is near where the mail is distributed, where again a neighbor's bees, who lives in the village, were exposed to this same contagion. Now, friends, whoever reads this, don't do such a thing as to send foul brood in the mails as samples, for by doing so you are liable to expose your brother to the same ills which you are so anxious to be rid of yourself. The books of the present day are sufficiently explicit in describing this disease, so you should be able to tell it yourselves without a reasonable doubt, with this additional test: Whenever you find something which you think is wrong about the brood in any hive in your yard, the first thing you are to do is to close that hive as quickly as possible, so that there will be no chance for other bees to get at the honey, and go and wash your hands and all else which you have used about the hive. This examination will tell you whether the bees are strong enough to repel robbers; and if so, the entrance should be contracted so you are sure no robbing can occur. Now leave the hive entirely alone till near night some day, about ten days from that time; and after the other bees are done flying, open it and examine it closely, washing your hands, etc., as before.

If you still think there is a chance of its being foul brood, leave the hive closed again for two or three weeks, providing it has plenty of bees to resist robbers, when you are to examine it again.

Now bear in mind that genuine foul brood is *aggressive*, and never *retrograding*, so that, if you find more of it than you did at first and second, together with the symptoms the books describe, that colony should be burned up at once, and gotten out of the way, before any of the rest have a chance to carry off any of the honey. If, on the contrary, it does not perceptibly progress, or there is not as much as before, keep watch of it till you are assured there is no harm in it. In no case change combs with any other hive, or expose any of this honey till you are sure it is not foul brood. Unless at least one-fourth of the apiary had foul brood, I should not attempt to cure it save by burning all up, for I do not think it would pay any one to run the risk he would have to in trying to cure the disease for less than that number.

G. M. DOOLITTLE.

Borodino, N. Y., Aug. 18, 1890.

In Ernest's absence I should say that we heartily concur with all that has been said in the above. The principal difficulty in curing the disease is that the average bee-keeper has no comprehension of the care and nicety required to avoid spreading the contagion.

QUEEN-EXCLUDING ZINC.

ITS USE IN FINDING QUEENS AND PREVENTING SWARMS.

Since the invention of the queen-excluding board, many new and useful ideas have presented themselves, and many more will in time come into use. I conceived the other day that it might be made useful in finding the queen, and made a box the size of the hive, 1½ inches deep, with bottom, but one end out. I nailed on top a piece of zinc. We now have a box 1½ inches deep, of the size of the hive, with one end out. To use, set it in front of a hive with the open end near the entrance of the hive in which we are to find the queen; lift the combs carefully, and shake into an empty hive without top or bottom, which is placed on the excluder-box, and you will smile to see the workers slip through, and, attracted by the noise in the hive, march in; and you will smile again to see the queen examining the different holes to see which is the largest. Why, all you need to do is to shake down the bees and help yourself to the queen. Another plan works equally well; that is, to place between two hives a piece of zinc board, and shake the bees in the upper hive as before.

For non-swarming extracting, when the hive is full of brood, and honey begins to come, place a set of empty combs or foundation below with the queen, the brood above, and the zinc board between, and they will roll in the honey if it is to be had, and will fill the upper story as the brood hatches, and the outside combs below. By extracting and changing every two or three weeks as above, we need not fear swarming, and we can rear queens above very nicely without cost. I have a number hatched out in the upper story, with their entrance in the opposite direction to the hive below. With this plan I believe we can requeen and increase or not, as we desire, and have no swarming.

Oswego, N. Y., June 13. F. H. CYRENIUS.

Both of the uses of zinc (viz., in finding queens and preventing swarms) have been before suggested, but that does not alter their usefulness. With black colonies the zinc method can be used to pretty good advantage at times. In Italian or Carniolan stocks it would not pay to bother with the zinc, as the queens can usually be found on the second or third frames removed.

WALKING-STICKS, ETC.

PROF. COOK TELLS US MORE ABOUT BUGS AND INSECTS.

The insect sent by James Crafton, Canada, is the common walking-stick, *Diapheromera Femorata*. At Mr. C.'s request I send a description for GLEANINGS. This insect is well named, as it looks like an animated stick, with stick-like legs attached. It never has wings. When young it is green, and rests upon the green leaves on which it feeds. When older it assumes a more sober, gray, or bark-colored hue. Now it rests on the twigs which it so strongly mimics both in form and color that it is very difficult of discovery. This specter-like insect feeds on vegetation, but is rarely common enough to do any appreciable mischief. Sometimes they are so common in forests that the falling of their eggs, which are let drop, are said to resemble, as they strike upon the leaves, the falling of raindrops. These insects, like the crickets and locusts, to which they are related, are possessed of jaws. They are entirely harmless, and may be handled with no fear of harm.

THE LUNA MOTH.

S. C. Gordon, Georgetown, Ohio, writes: "I have no 'snaix' to send you, but I send by to-day's mail a couple of moths and some of their eggs. Please, if your busy life will permit, give history and description in GLEANINGS."

These beautiful, green, long-tailed moths are the luna moths, *Actias luna*. They are our handsomest silk-moths. The larva is a fine green caterpillar, with hairy tubercles, and oblique yellow bands. It feeds on walnut, hickory, maple, etc. Although each moth lays scores of eggs, yet so few escape their bird and insect enemies that they do no perceptible harm to our finest shade-trees. The cocoon is rounded, and much like the cocoon of our oak silk-moth. The moths are of a very delicate green hue, and each hind wing has a long tail-like projection. I think these are by all odds our finest silk-moths. It is difficult to conceive of an insect more beautiful, either in color or form.

THE COMMON CICADA, AGAIN.

Mr. M. J. Langord, Highland, Minn., and H. C. Grover, Loyd, Wis., each sends the common cicada (*C. Tibicen*), the same that I described for GLEANINGS yesterday. These cicadæ are very common this year. I took my class a few days since to Grand Ledge, a deep cut through the rocks on Grand River. We found these cicadæ very noisy and common at that place.

BUMBLE-BEES IN DISGRACE.

The black nude insects received, one from R. E. Ashcroft, Brookside, Mich., and the other from M. J. Langord, Highland, Minn., are bumble-bees that have got into the bee-hives, probably while the hives were open; and the bees, in dragging them from the hives, have pulled all the hairs out of them. I have often seen just such cases in our own apiary. Often the bees in their rage will not only strip the poor bombus of its hair, but of its legs and wings as well.

The long black handsome beetle, with paral-

lel sides and impressed punctured lines on its wing-covers, sent by J. E. Dart, Connesauga, Ga., is *Passalus Cornutus*. The last name is given because of the horn on the center of the head of the male. This beetle is common in Michigan, and extends to the Gulf. The grubs live in and feed on rotten wood. This insect is closely related to the common stag-beetle, or "pinch-bug," and has similar habits. I comply with Mr. D.'s request and answer in GLEANINGS. A. J. COOK.

Agricultural College, Mich., Aug. 15.

RAMBLE NO. 27.

NIAGARA FALLS AND STEUBEN CO.

Our continued journey led us through Charlotte, on Lake Ontario, a famous summer resort for the Rochester and Western New York people. Our westward career was to end in Rochester; but being so near Niagara Falls, and thinking we should never again have the opportunity of seeing them, we resolved to spend a day there, and were providentially favored with a beautiful sunny day, and rambled and photoed to our heart's content, making some fine shots, with which we can revisit Niagara while cosily seated in our study. Our stroll across the bridge, with camera in hand, was interrupted on the Canada side with the question, "What is that ere camera thing you have in your hand?"

"Yes, sir," said we, "this is a camera thing. Any objections to my taking views?"

"Not the least, sir, if you are going to return soon; but if you are going on you must pay duty."

I gave him my proposed route to Horseshoe Falls, then down to the railroad Suspension Bridge, and back to the American side. He looked us critically in the face, and as much as said, "I know you are an honest man;" then audibly, "You can pass, sir."

We felt very happy, and smiled so benignly on the next hackman we met that he offered to carry us for 10 cents. We had been mad all day at hack-drivers on the American side for trying to prevent us from earning three dollars with our good walking apparatus. We had made up our mind, however, to keep out of hacks, and did so to the end of the day.

About as restful an experience as we had at Niagara was riding uphill backward on the inclined railroad. We felt so well over it that we were on the point of walking clear down the long stairs to ride up again; but a quarter for a ride was too much for us, and we gave it up. Our honest looks let us across the other bridge without an episode, and late in the evening we were landed in Rochester. We have no regrets for our Niagara visit. It is a work of nature that grows upon a person as he contemplates it in all its magnificent proportions.

After brief stops in Lockport and Rochester we were safely transported into Steuben Co., and dropped down at a little deserted way station near Bath, where silence and the darkness of a moonless and cloudy night were our sole companions. We felt somewhat discouraged; but when we made a dive for somewhere and ran into a barbed-wire fence, we felt most wretched, especially where we ran against the fence. We collected ourself together, so to speak, and after meditating around in the mud and against various kinds of fences for an hour, we at last found the house we were seeking—the poorhouse. We were saluted with a husky, spasmodic bark of an overfed dog, who said, "Tramp! tramp!" just as plain as talk. Tramps of all sizes, and variegated colors and conditions, call nightly upon this institution; and as the dog could not see our honesty he was perhaps excusable for calling us "tramp, tramp." We turned our camera up endwise and sat down on it to rest and consider. The governor of the institution, however, put in an appearance, and learning that the Rambler was the benighted traveler we were happily entertained, and all owing to the fact that the keeper's wife was the Rambler's cousin; and we found a home here, off and on, for nearly two weeks.

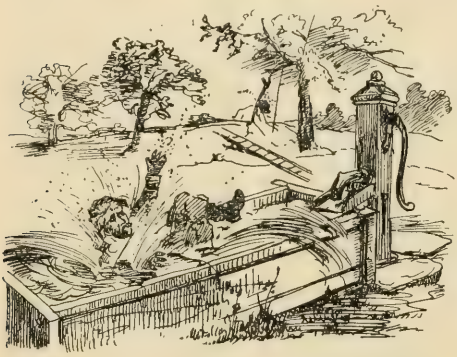
Bath is conceded to be one of the pleasant villages of Western New York. It is characterized by broad shady streets and many beautiful residences. The town is chiefly noted from the institutions established here, among which may be mentioned the Davenport Orphan Asylum and the New York State Soldiers' Home, the latter accommodating in its many fine buildings about 1200 old veterans, and the beauty of the grounds and cleanliness of the buildings, and abundance and quality of the rations supplied, it is a home indeed. Bee-keeping is not a very extensive industry in and around Bath. Mr. J. H. Hadsell has an apiary in the suburbs of the village, where he attends to bee-keeping and fruit culture. His small farm is almost entirely devoted to small fruits. He uses the old-time Kidder hive, which in external appearance is much like the Dual hive recently adver-

J. H. HADSELL'S APIARY.

tised in GLEANINGS. He uses the hive both single and double walled, and winters on the summer stands. Mr. H. uses an old-style 1½-lb. section in pairs, which must be sawn apart before putting upon the market. Comb honey was selling at 10 and 12 cents per pound. Mr. H. was very pronounced in his opinions about small bee-keepers who allowed grocers to set the price upon their products. He could sell extracted honey at as good prices as comb honey, and proposed to raise more of it in the future. He said sulphured honey was liable to produce colic, and cited several instances to prove his position. As a substitute for fuming, he prevented miller-worms by keeping comb honey in a cool dry room, in a temperature not above 60°. Mr. H. invented and patented a honey-strainer several years ago, but the sales did not amount to much, and he evidently looked upon it as a past folly, and did not wish to say much about it. Thus, how often our pet schemes of one period become a thorn in the flesh later on! There were other bee-keepers in the vicinity of Bath, but mud and rain prevented the extension of our acquaintance in that line. Mr. Henry Peacock, a helper at the county house, should not be passed, for his apicultural experience was brief but thrilling. A few swarms of bees were under his management; every thing went well until one day, while hiving a swarm, an old dead apple-tree limb caught the hat and

veil from his head, "and," said he, "it seemed as though half the swarm made a dive for my head."

"I suppose you rushed for the nearest bushes, or the cellar, to get rid of them."



"HEN" PEACOCK IN THE WATERING-TROUGH.

"No, I didn't. I went for the nearest thing, and that was the watering-trough, and plunged in all over."

"Ha, ha! that was splendid. Did it get the bees off?"

"Oh, yes! it cooled them off, and me too. I soon crawled out and ran for the barn, where I combed a few out of my hair. I have never managed bees since, and want nothing to do with them."

"Lucky Peacock!" thought

THE RAMBLER.

VERTICAL VS. HORIZONTAL BEE-ESCAPES.

THE DIBBERN ESCAPE A FAILURE WHERE THE OLD-STYLE REESE SUCCEEDS.

Since reading friend Doolittle's unfavorable opinion of the utility of bee-escapes in GLEANINGS for Aug. 1, I feel it a duty to give my experience. After a fair trial I found the horizontal has been a failure; while the vertical cone, as I use it, is all that I can desire. Without its aid I could not have managed my bees without assistance. I am a practicing physician, and it so happened this summer, that, just as white clover opened (our only source of surplus), an epidemic of measles and dysentery visited us, keeping me on the road almost continuously during flow. Only a few of my queens being clipped, most of my swarms went to the woods. But, to my subject, bee-escapes:

Having given Dibbern's horizontal repeated trials with failure, and being compelled to have some aid along that line, I at once made several vertical (after Reese's plan). With these I find two things necessary for perfect work: First, there must be an air-space between the escape-board and brood-nest. Second, the opening at the apex of the cone must be of good caliber, not less than ⅜ of an inch.

Take a board the size of your section-case, and in its center insert a wire cone having a 2½-inch base, 3 inches deep, with an opening for exit at the apex not less than ⅜ of an inch. Tack the board on an empty case, and you are equipped for business. Now, just before sunset go to your hive having sections ready to come off. Don't take a smoker with you; lift off gently the full super, bees and all. Set the escape in its place on the honey-board, or, in its absence, on the brood-frames. Set the full super on the escape, then put on the cover. Very early next morning, take off your case and take it to the honey-room. Now remove the escape, and with a gentle puff or two of smoke drive the bees below the honey-board. Put on your case of empty sections, and the work is done, and with no loss of time to the bees, and comparatively none to you. I would say to friend Doolittle, that there will be no young bees remaining behind to be lost. In taking off over 500 lbs. by this method I do not think the average was half a dozen bees to the case, sometimes only one or two of what my wife fondly styles "baby bees." I am possibly over-sanguine, but I really believe that, in the near future, even now, the procuring of comb honey will be attended with less trouble and expense than extracted. WM. S. ADAMS.

Guys, Md., Aug. 18.

BEE-ESCAPES A SUCCESS.

I have been looking for some time in the different bee-journals for some reports of the horizontal bee-escape; but as yet not much has appeared; and I am a little surprised to learn that some have met with failure. I became much interested in them last winter, when so much was going the rounds in the bee-journals, and looked forward with much interest to the time when I could test them. I thought if they would work as represented they would be a great help in taking our surplus honey. I sent 50 cts. to Mr. Dibbern, and procured a sample of his horizontal escape. It was very nicely made, and looked as though it would do all that was claimed for it. But I did not like the exits being on a level with the tin, to which it was soldered; and I could not see but that a single cone would work just as well as a double one. I made five or six after my own plan, with single cones, the cones projecting away from the tin, with the intention of testing all of them when the time came. Now for the result:

In the morning, while it was yet cool, I took my smoker and escapes, and went into the bee-yard. I went to a hive on which was one or more cases filled, or partially filled, with honey, which I wished to take off. I removed the top case, and placed the escape on top of the other, or on the top of the hive, as the case might be. I then replaced the case of honey on top of the escape. I proceeded in this way till my supply of escapes was all gone; and then in the afternoon, or late in the evening, I went around to each hive on which an escape had been placed, and took off the cases of honey, and carried them to the honey-house, a great many of them without a single bee in, and some with a few bees in, with the exception of three or four cases. These I left on for two or three days, and then took them off with a good many bees in. I can not tell why the bees did not go out of them, unless they were mostly young ones. I had the Dibbern escape in use all the time with the ones I made myself. The Dibbern escape did not seem to clear up a case of bees as soon nor as clean as my own make. The bees seemed to find their way back in. On one occasion, when I had taken the Dibbern escape off a hive, a considerable number of bees were on the under side of the escape. I held it in my hand a few minutes to see if any of the bees would find their way back through the escape, and in that short time four or five bees found their way back through the escape. The exits being on a level with the tin, and the exits of both the cones being directly opposite each other, and so near each other, if a bee finds its way in through the first cone it passes on directly through the other cone and back into the super. In my escape the exit is away about a bee-space from the tin; consequently it is not so easily found by the bees.

Perhaps I should say just here, that I made

another escape that worked very well. It is simply a frame the size of the top of the hive, and about 1¼ inches high, with two or three cones made of common wire cloth tacked over so many three-fourths-inch holes in one end of the frame. The cones were made about 1½ inches long. These escapes were put on the same as the others, with the cones turned to the front of the hive. In about half an hour the bees could be seen rolling out of the cones as fast as they could get out, and down over the front of the hive, into the entrance below. The only objection to this kind of escape, that I could see, was, robbers might find their way in, but I think not to amount to any thing, and they are not so easily taken care of, as the cones are in the way, and are in danger of being mashed.

I regard the bee-escape as one of the best inventions of the day. What the improvements will be in the future, remains to be seen.

Millsboro, Pa., Aug. 14. OSMAN McCARTY.

FURTHER TESTIMONY.

In response to the editor's call for experience with bee-escapes in getting bees out of supers, I am able to report that the *new* Dibbern horizontal bee-escape is a success. The escapes are to be adjusted under the supers, and left on over night. In the morning the supers will be found nearly or quite rid of bees. In one case, three stories of my hive full of honey and bees were cleared in one night, so that there were only a dozen or two bees remaining. There seemed to be no disturbance to the colony, and work was resumed as if nothing had happened.

The supers are, however, not so quickly or so completely emptied, as a rule, when the escape rests only ⅜ of an inch above the frames as where a rim one or two inches deep intervenes between the escape and the hive. With the shallow rim beneath the escape, the supers will generally be found cleared of every bee the next morning. The rims I used were 2 inches deep, and have various other uses in the apiary, as in the introducing of queens, in shipping, etc.

It is somewhat remarkable that the bees do not bite into the cappings of the honey by the new mode of clearing supers. This fact alone is worth considerable to the bee-keeper, as by no other method except one can the bees be prevented from mutilating the cappings. Every one of the plans recommended by friend Doolittle, on page 555, are open to this objection, and are regarded as impracticable to bee-keepers in general where the honey is to be taken expeditiously and in good order.

There is but one plan I know of to get bees out of supers with smoke successfully, and it is as follows: Make a frame 4 inches deep for a stand, and wide enough so as to stand the supers up endwise. Nail at each corner a leg one foot long. Place this stand near the front of the hive. Now light a good smoker, lift the cover of the super off, and smoke the bees down. Hand the smoker to an assistant, and lift off the super and place on the stand. While the assistant works the smoker, vigorously throwing the smoke through the sections, the apiarist takes a hand brush-broom, and by quick movements brushes off the bees in front of the hive as fast as they come out of the super. In less than two minutes every bee can be driven out. The assistant then carries the super to the honey-house, while the apiarist takes off another super and places on the stand, or moves to the next hive. By this plan the surplus honey of a large apiary can be taken off in one day, and in the best of order, and without bother from robbing.

The objection to the plan is the rough and cruel treatment necessitated to the bees. I confess not to have been in favor of the introduction of bee-escapes; but the Dibbern bee-escape overcomes my anticipated objections; and believing that our bees deserve humane treatment at our hands, I shall use it hereafter in taking off my honey. DR. G. L. TINKER.

New Philadelphia, O., Aug. 15.

STILL FURTHER TESTIMONY.

On page 556 I find the following: "I hope, if they are not already what they ought to be, that some inventive genius may find out where the trouble is, and give us an escape that can be placed under a case of sections or an extracting-super at night, and rid it of bees before morning."

While I think that Mr. Doolittle will find that we can never get an escape to work just as he has stated in the above sentence, I wish to say that that "inventive genius" has already put in his appearance. I have been using bee-escapes all summer, and they have given me such satisfaction that I feel safe in saying that such escapes as I am using will give as much satisfaction in a practical way as T supers or bee-smokers. While bee-smokers will occasionally go out or burn out just about the time we need them most, they are indispensable to success in keeping bees. So with T supers: while they are objectionable in some respects, we can not dispense with them until we find something better to take their place. And we have a bee-escape that will get the bees out of surplus-receptacles, and *keep* them out; but I have found, that, when the escapes are placed on the hives late in the evening, or even after the middle of the afternoon, but very few, if any, of the supers will be cleared of bees by daylight or sunrise the next morning, simply because the bees appear not to be inclined to change about or leave the supers during the night.

I have taken off over 1800 lbs. of comb honey with as little inconvenience, and less trouble with bees, than I usually experience in taking off 100 lbs. By adjusting the boards in the morning, say from 7 to 9 o'clock, the supers will usually be ready by 1 or 2 o'clock in the afternoon; and, if the boards are immediately adjusted under another set of supers, these can be removed early the next morning, thus using the same escape twice in one day. The honey-flow, conditions of the weather, and the disposition of different colonies of bees, all these have their influence, and tend to make up a varied experience in the use of bee-escapes. Colonies that are quiet and not easily disturbed are slow to move out of the supers; and hives that are overcrowded with bees, if the weather confines them to the hive, will so choke up the outlets of the escapes that the bees in the supers appear for a time to be unable to force their way out. But these are exceptional cases; and in the latter, two escape-boards, placed one on top of the other, soon clear the super.

The cone escapes can not be made satisfactory. I have used cone escapes that are much superior to the Reese or Dibbern patterns, which have worked reasonably satisfactorily under ordinary conditions, but in every-day work the bees find their way back through them more or less. What is wanted, and what I have been using for nearly three months, is an escape that will permit the bees to pass out easily and rapidly, and at the same time allow no bees to return. The inventor of these escapes is a bee-keeper of this county; and while he is endeavoring to get up something that is of practical utility, he is in no hurry to offer escapes for sale, preferring to give them the test of a whole season's operations. S. A. SHUCK.

Liverpool, Ill., Aug. 23.

MORE ON HORIZONTAL BEE-ESCAPES.

In regard to the working of the horizontal bee-escape, friend Dibbern's four-point escape is not a success. Mr. D. has a new tin escape that works nicely. I have been testing it for two weeks. It will rid an extracting-super in two to three hours, and the bees stay out. It will clean the bees out, even with brood in combs; but they are longer in leaving. The hives were full of bees, and I did not put on an empty super, so you see they went down into the hive already crowded with bees. I was much pleased with the first one Mr. D. offered for sale, and I made up a lot of 25; but I was soon disappointed, for they did not clean a case of honey in a week. But I found a use for the boards, and will keep them for introducing queens, feeding, and covers for super cases.

Unionville, Mo., Aug. 16. E. F. QUIGLEY.

HORIZONTAL BEE-ESCAPE A SUCCESS.

You ask for accounts of the use of the horizontal bee-escapes. I am very much pleased with the working of mine. With them I can take off my honey without any use of smoke or disturbing the bees, or exposing the yard to robbing. I prepare the board to fit in the inside of a super, resting on the tins which support the frames. An assistant takes the super thus prepared, and stands ready to slip it on the hive as I lift the super with honey, and then place it on the super containing the escape. The whole operation takes but a moment. The next day I take the top super away undisturbed, and leave the escape till I prepare them for winter. A small piece of burlap takes the place of the tin; and this covered with a woolen quilt, the winter work is done. G. A. ADAMS.

Perrysburg, O., Aug. 14.

HORIZONTAL BEE-ESCAPE ALL RIGHT.

I see by GLEANINGS that the horizontal bee-escape is not working satisfactorily for friend Doolittle and others. I am using it, and with good results. I made my escape-board so as to give a double bee-space between it and the sections or frames below. The escapes were made so as to give ¾ of an inch space between the sides of the inside and outside escape. If I make any more escape-boards I shall try a full inch space between it and the hive or case of sections below. The bees will not cluster so thick on the escape, and will not be so apt to find their way back into the upper case of sections.

My bees are doing well. I have secured 150 pounds clover honey (comb) from five colonies, spring count. I expect twice that amount from buckwheat and fall flowers. D. I. WAGAR.

Flat Rock, Mich., Aug. 8.

ANOTHER FAVORABLE REPORT.

As you ask for reports on bee-escapes, and as I used six Dibbern improved escapes, I report that I found them a success under section honey every time. When used under extracting-cases I met with two failures; but on examination I found in one case there was brood; in the other case, no perceptible cause, so I count only one failure. Of course, there were sometimes from 12 to 20 bees that had not worked out—never more, and frequently none. Few inventions are perfect. With me the bee-escape is as near perfect as the bees themselves, for they have failed here right along. From 40 colonies, spring count, I have 1200 lbs. extracted and 350 lbs. comb, and no rain to insure honey. Never before have I had unfinished sections of comb honey enough for bait the following spring; but I have them now to spare. Well, they are not the trouble I expected them to be. I cut them out and fill the cracks with extracted honey, and they go like hot cakes in my home trade. I shall have no other this year. In fact, I shall lack at least one ton of enough extracted honey, and probably be 1000 lbs. short on comb honey. I have been trying to buy, but so far I have not succeeded in getting an article that I felt justified in buying at prices asked.

Moberley, Mo., Aug. 9. J. RICHARDSON.

BEE-KEEPING IN NORTH CAROLINA.

A VISIT REVEALING EXCELLENT TERRITORY, WITH FEW BEES AND POORER METHODS.

As per promise, I will send you a few notes gathered from a tour of the mountain counties of this State. In company with a friend I took leave of this, a rather central location, to see what could be found of interest in the line of the bee-industry. The first thing to impress us was the extreme scarcity of bees. This fact is the more striking when we are forced to conclude that these mountain counties are the very paradise of the honey-bee. The famous sourwood, which is the basswood of the South, abounds on every hand. Then there is a long list of nectar-producing plants and trees that give an almost continuous flow from February till frost. There are immense tracts of forest that will remain such, as the lands are not fertile. We found a few bee-keepers who had in use the Mitchell, or "adjustable" hive, and the old American. All claimed to be using patent hives, for which they had paid.

The first call we made was with a good brother bee-keeper who claimed to have 150 colonies, all in the Mitchell patent division-board-adjustable-reaction hive. He said he was very much wedded to this hive, but he said his confidence in the inventor was not as strong as in days of yore. We were so completely dumbfounded when this friend told us that he had never used a bee-smoker, nor taken a bee-journal, that we forgot to hand him a copy of GLEANINGS from our grip, and also to show him a Clark smoker we had with us. In justice to this friend, we must say that he owned up to having had a copy of King's text-book, but that he had not seen it in years. We will take leave of our good host when we say that his success in bee culture is not the kind that succeeds, taking his own statement for it.

We made a few minutes' call on another bee-brother who has about 20 colonies in the American hive. His bees were too high for the weeds to trouble. His crop of honey last year was fine, but had in a measure failed this season. On being asked if a good crop once in two years did not pay him to keep bees, he said it did. We gave this friend a copy each of the *American Bee Journal* and GLEANINGS. These men are about a type of the bee-keepers of this, as good a field, all things considered, as can be found south of the Mason and Dixon line. Almost all have the black bee.

We heard the most remarkable stories in regard to the fall of honey-dew during last winter. One reliable man told of his pants becoming coated while rabbit-hunting in the sedge-fields. We should like to hear what Prof. Cook has to say in regard to a winter crop of honey-dew.

Our bees had begun to nose around the cotton bloom before we left, and, to our pleasant surprise, we found them fairly rich, all from this source. One-third of this time was very rainy too, so bees had only about ten days to get from a starving condition to a comparatively prosperous one. This was so only with colonies that kept brood-rearing right along through June.

I am glad to say my dish was nearly right side up. Our cotton honey is excellent in quality. I will mail you a sample soon.

The Dovetailed hive is being introduced here, and will, I think, become popular. Friends Cauthen, Simpson, and myself, have been using this hive for several years—the same except the dovetailed corners. A. L. BEACH.

Pineville, N. C., Aug. 14.

POPLAR.

CAN WE FIND A SUBSTITUTE FOR BASSWOOD FOR SECTIONS?

I have noticed considerable stir among our Northern bee-writers in regard to the consumption of basswood timber for sections and other purposes; and some are taking measures to withhold this rapid destruction of the timber, and suggesting substitutes for it. This is certainly the proper thing; but we should move slowly, be sure we are right, and *then* we can go ahead with the minimum of friction.

I greatly fear that those who have discontinued the use of basswood sections, and adopted poplar (or tulip) as its substitute, have not bettered the matter very materially, so far as the general welfare of the bees is concerned. Our Northern friends do not seem to realize fully the real value of the poplar as a honey source, perhaps on account of its scarcity there. While basswood is *very* scarce here in Southern Ohio, poplar fills its place, and fills it well. I do not know very much about basswood as a honey-producer except as I read what is reported through the journals; but I should not hesitate to say that poplar will at least "hold its own" with basswood, every time. White clover is perhaps at the head of the entire list of honey-producing plants, as A. I. Root says in his A B C. Yet bees in this locality gather as much honey from poplar in fourteen days (the average length of time of poplar bloom) as they do from clover in fifty days (the average length of time of white-clover bloom). I feel certain that the fully developed blossoms will average half of a teaspoonful of nectar; and when the trees are in full bloom, the bees get themselves all daubed, just as they would if they were taking honey from a dish. So those to whom the poplar is a stranger can form some idea of its honey-yielding properties. But the honey is not such a fancy article as that from white clover or basswood. In color, it is a little dark, or golden. After all, this is no serious thing; for coming, as it does, between fruit and clover bloom, the bees make use of most of it in filling up the brood-chamber, so we do not get a great deal in the sections.

But here is the point: There is a period of about three weeks between fruit and clover bloom, during which the bees could not get enough to run them, and would have to be fed during the whole time to make them prosper properly. But as it is, we are not compelled to feed. We have just the thing we want. Instead of feeding to keep up brood-rearing, the bees are rolling in the dark poplar honey until they have the brood-chamber crammed full, and many are already up in the sections ready for the whole crop of clover honey, which follows close, for surplus.

It is hardly worth the space to say that our poplar is, and has been for some time, meeting the same fate as the northern basswood; indeed, a *worse* fate, for, as every one knows, poplar timber is being used for purposes almost innumerable. J. C. ATKINSON.

Nelsonville, Ohio, Aug. 18.

Friend A., your points are well taken. The destruction of the forests is certainly going to have a marked effect on bee-keeping as an industry; and unless forests are planted, or fruit, or some other honey-bearing trees, in sufficient quantities, there is trouble ahead.

DO BEES CHANGE NECTAR?

PINE-TREE HONEY.

In your reply to D. A. Rothrock, July 1, you say that bees do not change the nectar in carrying it from the flowers to the hive. Last winter I sent you some samples of pine-tree honey-dew, and I now send a sample of honey made from it. I know it is genuine, as I placed an empty comb in the hive, and extracted the honey from it; and as it was in the winter, there was no possibility of their getting honey from any other source. You will observe that it has a "honey" taste, while the honey-dew tasted more like sugar syrup. It is darker (it was not as dark, however, when first extracted), having stood in a bottle since March. The honey-dew I had collected in vials soured; this does not. When the honey-dew had collected on the bark and evaporated, it left a lump of what looked and tasted like white sugar. I don't think this will. If you feed bees honey, what can they store but honey? and if it is scorched, or bad in any way, of course it remains so; but I can not think they store any thing but honey, no matter what they collect, and said honey is of different quality and taste, according to the substance from which it is made. You are very positive and earnest in denying charges of the

ADULTERATION OF HONEY

by feeding bees. Are you sure that some of the large quantities of sugar that we read of some apiarists feeding to their bees is not taken out and sold as honey, and that there is not enough margin for a fair profit between the prices, when sugar is bought by the wholesale? We have had no surplus honey as yet, as there was but little of any kind of bloom in the spring, and the honey was mostly consumed in breeding, which was very early and profuse. The honey-dew appeared again, however, about July 15, and they are now booming.

Amherst, Va., July 31. J. OSBORN.

Friend O., we are all very well aware that bees evaporate, or ripen, honey in the combs; and we also know that well-ripened honey is very different from the raw nectar, as gathered from the flowers. This ripening process can be done artificially, nearly if not quite as well as the bees can do it. The raw nectar from the spider plant has a green, sickish taste, or something that way, when you gather a spoonful or two; but hold it in a spoon over a lamp until it evaporates, so as to be as thick as thick honey, and it has a very delicate, pleasant flavor.

In regard to feeding bees to get honey, all that is needed to show the folly of such a course is to try it. See what is said in the A B C book in regard to feeding honey back to get sections filled up. I don't think there has ever been a time when any bee-keeper could make it pay to feed his bees sugar so as to sell it for honey after they had sealed it up in the combs. The matter has been discussed in our journals for 20 years back. We may feed cheap

sugar to keep the kees raising brood so as to make it pay, without question; and many bee-keepers do this, but no bee-keeper is now feeding sugar in order to get something to be sold as honey. He will surely become bankrupt if he keeps on at it.

QUEENS LEAVING THE HIVE.

DO THEY DO IT?

Do laying queens ever leave the hive, when not accompanying a swarm? My experience is, that they sometimes do. The present season I have about thirty hybrid colonies that I bought last spring; and wishing to raise queens to sell I am using an Alley drone-trap on each hybrid colony, to keep the drones shut in. In the past week I have found the queens of four colonies dead, in the upper apartment of the drone-trap. It is possible, but not probable, that the queens died and were carried there by the bees. They were all young laying queens, raised this year, and were purchased of one of our most eminent queen-breeders, and had been introduced and laying at least three weeks.

My bees have been working on buckwheat, and swarming, the last two weeks; but I have never been out of sight of the bees long enough for them to swarm without my seeing them, so I do not think it probable that they got into the trap by going out with a swarm.

By removing the wire nail that closes the opening between the upper and lower apartments of the drone-trap, the queen could return to the hive; but that would let the drones back too, and one would be obliged to keep the traps on all summer to keep the drones in.

In C. C. Miller's article in GLEANINGS, Aug. 1, page 559, he asks, in conclusion, why the queen does not lay drone eggs in incipient queen-cells where they surely would have elbow room. In my eight years' experience in queen-rearing I have found queen-cells built on drone comb several times, and that, too, when the bees had worker eggs in plenty to build cells on. As I was anxious to know what kind of an animal they would hatch, I watched them closely, but they invariably failed to hatch at all, the larva always dying in the cell before hatching.

ELMER HUTCHINSON.

Rogersville, Mich., Aug. 19.

NOTES FROM RHODE ISLAND.

THE HOFFMAN FRAME, ETC.

Although "Little Rhody" is not much of a honey State, its bee-keepers pride themselves on keeping abreast of the times in the apicultural world. They are constantly trying new paths and short cuts, and endeavoring to outstrip their neighbors of "wooden nutmeg" fame, and leave behind "ye pilgrims of ye olde Baye State." We bee-keepers about the shores of beautiful Narragansett find we must modify systems successful elsewhere, to fit our climate and flora, which, to say the least, is often erratic.

This year there was a good flow of honey all through July, coming from an early variety of goldenrod and two varieties of spirea. This July flow is unusual, bees generally having to live on what they have laid away. To be always ready for these irregular flows we have to keep the queens constantly at work. August and September seldom fail to bring good flows. Perhaps when I say that, in three of the best apiaries in the State, the Hoffman frame is used to the exclusion of all others, you will think some of us are progressing backward. Be that as it may, the owners of these apiaries will now tolerate no other style, except for experiment.

If you will try the standard Hoffman frame beside your modified style, you will, I think, be convinced of the points of superiority of the standard as explained by Mr. Hoffman in GLEANINGS for July 1st.

I find the same trouble with a deep (1½ inch) space under the frames as does Mr. Hatch (Aug. 1, p. 561). During the past three seasons, with from 1 to 20 colonies so arranged, the result was always the same.

If Ernest will take foundation partly drawn out, and try his experiment of stretching while it is yet warm and soft from the heat of the hive, the result, perhaps, will be different.

As for the way bees build their comb, they do not always go "according to Hoyle." I took from a colony a few days ago a new comb, one-third of which was built as it should be, and the other two-thirds as it is said it should not be. It was built on a new clean frame without any foundation or guide whatever, and by a good thrifty colony in normal condition. That colony evidently needs educating. But once have I had drones driven out in June (1889) when honey was fairly plentiful. I ascribed it to an unusual scarcity of pollen; for as soon as that became abundant again, the drones were undisturbed. ARTHUR C. MILLER.

Providence, R. I., Aug. 9, 1890.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HONEY FROM COBEA SCANDENS.

One fine morning I noticed on my porch some drips that I couldn't account for; porch rather dusty, and there were the drops, eight in number, and not a sign of any thing to show from whence they came (I thought). It was mysterious to me, as my folks had been away from home some two months, and I thought more or less about it all day. The next morning I found the porch fairly spattered with it; and tasting, I found it honey. In a moment it flashed on me (flowers). Covering all the porch are luxuriant vines of *Cobea Scandens*, whose bell-shaped flowers are daily loaded with honey, clear as crystal. It took the bees about two days to "tumble;" but now as many as five at a time can be found in a single flower, and every morning the drops hang and glisten so plentifully you can gather it with a spoon. It is something new to me, or at least I've failed to notice it heretofore.

The season is poor for surplus, fair for increase; some few swarms coming, even this late. As usual, Italians in the lead.

Portland, Or., Aug. 7. E. J. LADD.

A NEW USE FOR PERFORATED ZINC.

The honey crop is small this year. From 200 hives, fall count, I have extracted 1500 gallons; cause, too much swarming late in the season, when they should have been gathering honey. I have found a new use for your perforated zinc. I place one on a weak two-story hive. I hive the small swarms in the common wooden water-buckets, and set them on the zinc. The bees will go down through the zinc and leave the queen on the zinc. By doing this, weak hives can be made very strong. I then keep putting on top hives, and hiving small swarms, and I have no trouble about fighting, as the bees are

gathering honey. The above is very old to the veterans, but new to the A B C's.

I see much in the bee-papers about planting for bees. Almost all say it doesn't pay. I have been experimenting a little on that line. I got half a bushel of white-clover seed of you. I sowed it in February and March, 1889. Not a seed has been seen since. White clover does grow here. Bees work a great deal on mustard. It is almost a constant bloomer, if planted, say, every 15 days. J. W. PARK.

Columbia, Tex., Aug. 14.

FROM 2 TO 7, AND 100 LBS. OF HONEY.

I received the queen in good condition. She now has the hive full of brood and eggs. I was much surprised to find I had sent too much for her. I have never had a pure Italian before. I started last year with two colonies of blacks in rack hives. I got from them 7 swarms and 100 pounds of box honey. They wintered well, but I lost one this spring. I have had 12 new swarms this year, but will get no surplus, on account of the dry weather. It has been very dry. I had to feed during white clover. I think they will winter if we get some rain. My bees, both blacks and hybrids, are very gentle. They hardly ever sting unless I pinch them. If my queen lives I am going to try Italians another summer. I hear them praised so highly I will report how I like them. E. J. BARBER.

Corinth, Miss., Aug. 13.

ARE BLACK BEES LESS LIABLE TO DISEASE?

I have 100 hives of black bees. I don't doubt but that the Italians would make more honey. I have never seen a case of foul brood, nor heard of any in this part of the country. Possibly there is no connection between having all black bees and no foul brood. Won't you please answer briefly the following questions?

Are not black bees proof against foul brood, sometimes, when Italians are not?

If Italians are more prolific than blacks, are they not also more inclined to swarm frequently? J. S. CALLBREATH.

Rock Rift, N. Y., July 4.

Black bees are no more proof against foul brood than Italians. In England and Germany, where black bees are the prevailing race, foul brood has made its mischief for many years.

As Italians often get honey when common bees do not, they sometimes swarm when common bees do not.

A CORRECTION IN NOMENCLATURE.

I have just been reading GLEANINGS, and I notice an article on page 526 upon "Apicultural Nomenclature," in which the writer, in trying to correct one error, has fallen into another. The writer states that "cottonwood, balm of Gilead, and quaking aspen, are all different trees, though very nearly allied to each other. The poplar is of another and distinct type." Partly right and partly wrong. Botanists, for convenience, have grouped all plants, including trees, into families; and again some of these families are divided into sub-families. The willow family is one which has a division, and one of the parts, or sub-families, is called *Populus*. In this division are found several members—two aspens, the American and large-toothed; five poplars, the downy, balsam, white, Lombardy, and necklace (the last of which is *called* cottonwood), and the balm of Gilead. These are all different trees, but closely allied, as Mr. T. states, only he should have included the poplar. He says the poplar and tulip-tree are the same. Now, the tulip-tree belongs to the magnolia family, and that is about as near like the willow as the rose is like the milkweed family. Prof. Asa Gray says, that in the West the tulip-tree is wrongly called the poplar. There is no tree named whitewood, but it would seem as if all trees whose wood is white are in certain places called whitewood.

Geneva, N. Y., July 25. PATTIE MASON.

MAKING HIVES AND FIXTURES BY HAND; BEST HONEY SEASON.

I have made 100 hives, all of the frames, and 2000 sections and 1600 separators, all sawed by hand power, so you can see that I wished I had a good engine more than once. I have now 118 stands of bees. I took off 340 lbs. of honey, and have about 1000 lbs. to take off this week, all in 1-lb. sections. The honey is the whitest I have had since I have had bees, and the best honey season so far.

THE WORK OF BAD BOYS, AGAIN.

I had to go out and fix up a hive that two boys were trying to steal honey from about an hour ago. It is 12 o'clock at night now. I hope you have not any boys of that sort out there. If they had wanted honey, and had come to the house, I would give them all they wanted to eat. As it was, the bees were not asleep, and they lost their honey, and had a lively run.

Dover, Mich., July 28. A. N. WHITLOCK.

QUEENS LOST ON RETURNING FROM THEIR WEDDING FLIGHT.

I have been losing a good many virgin queens during mating this summer. I had a nucleus in an observatory hive, and saw the queen take a flight about four o'clock. She came back in about five minutes, successful. Immediately on entering the hive she was balled; and as I did not suspect any thing wrong she was killed in a few minutes. Is it a common occurrence, and is that the reason I have been losing so many virgin queens?

The horizontal bee-escape has worked well with me this season, nearly all the bees being out of the sections in the morning, if put on at night—perhaps a few in one or two sections.

LLOYD SECHRIST.

Pleasant Home, O., Aug. 6.

Friend S., such things are not very common, although they do happen, especially when there is a dearth of honey. I have never known it to continue long enough to do much harm. I have sometimes thought it was caused by placing hives so close together that the bees were in the habit of mixing, until they get into a quarrelsome frame of mind.

CATCHING QUEENS BY MEANS OF THE PERFORATED ZINC.

Here is a quick way to catch black queens, and it will work equally well on any kind of queens. Take one sheet of your queen-excluder, say 13x20, make a box two inches deep, with bottom and sides of thin stuff—no cover. Now make one the same size out of 1¼ stuff, ⅝ wide; now nail on zinc excluder for the bottom, and the thing is made. Take it out into your bee-yard; set it down about a foot in front of a hive, the deepest part first; then put on the zinc with the rim up, to keep the bees from running off the sides; then use a little smoke. Pick up the frames with the bees all on. Now, do not stop to look for the queen, but give it a quick shake in the box on the zinc, then take another the same, and so on, as fast as you wish to, and you will soon see the queen on the zinc. The bees have gone through as fast as shaken on in the box below, leaving the queen in plain sight. Pick her up, shut up your hive,

pick up your zinc, shake it in front of the hive, the box the same. All can be done inside of two minutes. It is quick, easy, and robber-bees have no time to find what you are at before the thing is done. We have caught 16 in two-story hives, in 28 minutes. Try one; and if you do not laugh, charge it to me.

Fulton, N. Y., Aug. 12. OSCAR DINES.

Friend D., the use of sieves with a bottom of perforated zinc is very old. Quinby described it, if I am not mistaken, in one of the first editions of his book. Your arrangement, however, seems to be a very convenient one. We have used such devices to some extent; but as *we* ordinarily find our queens in less than a minute, it would hardly pay us in our business. *Our* colonies, for the purpose we use them, and with the *metal corners*, are very easily looked over.

WHAT WOULD BE PROPER RENT FOR 500 COLONIES?

If I should own an apiary of 500 or 1000 colonies, and should not desire the care of it, for what could I rent it in cash, the renter to have honey yield and none of the increase? Would it be best to have so many colonies of bees together, or would it be best to separate into apiaries of 500 each, several miles apart? My apiaries would be in Colorado.

MISS LIDA WINSLOW.

Carthage, Ind., June 28.

My friend, I do not know how we can answer your question. In the first place, I do not believe in renting bees. Sell them outright at some price, and have it done with. If, however, nobody around you is willing to buy, but is willing to rent, I would put it like this: For instance, the renter is to take 500 colonies of bees, and turn them over to you in one year, in as good condition as he found them. Let him pay you as rent the ordinary rate of interest on the value of the bees, as nearly as you can give on a fair valuation. Then let him have every thing he can get out of it—honey, increase, wax, and every thing else. If you undertake to put in a lot of conditions you will complicate the matter and open the way to no end of dissatisfaction and complaint, perhaps on both sides.

SELLING HONEY BY THE SECTION; WIRING FRAMES, ETC.

The grocers in Middletown, this county, so far as I know, buy honey in sections by the pound, but many of them sell by the section, and not by weight. I have tried to convince some of them it was not a fair way of selling, but it is less trouble, and that suits them.

I have a nephew in business in Honesdale, Pa. I was there last winter. He was selling sections at 15 cts. each; paid 12 cts. per pound for them. They did not average near one pound in weight. As far as my observation goes, fully as many sell by the piece as by weight.

In using tin bars in wired frames I set the edge of the bar against the foundation and not the flat side. It takes up little room, and is not in the way, for the bees build up to it and cover it all over. I use 7 instead of 6 upright wires, having one in the center, the tin bar on one side of the sheet, and the wire on the other. Your old way of wiring frames can't be bettered.

Will some one who can do it, please tell in GLEANINGS how to get the bees to carry the honey from partly filled sections to the body of the hive when they need it for winter stores?

I have a fair crop of honey this year. I have been in the business here for 11 or 12 years, and in that time have always got some surplus, and, with the exception of two seasons, have had good crops. E. D. HOWELL.

New Hampton, N. Y., Aug. 8.

Friend H., I fear I shall have to give up that honey is sold by the section a good deal. Notwithstanding, I think it is a wrong way of doing business. But it seems to me that the dishonesty lies on the grocer and *not* on the bee-keeper. We can not well make our sections to average a pound, very closely, or any thing very near it.

NOTES AND QUERIES.

DIBBERN BEE-ESCAPE—A GOOD REPORT FROM.

I would say I have used the Dibbern bee-escape, and it gives good satisfaction by putting it on in the evening. The bees were all out of the T super excepting about ½ dozen the next morning. D. BECKMANN.

Wheatland, Iowa, Aug. 7.

HANDLING BEES WITHOUT SMOKE.

You speak of handling bees part of the time without smoke. I believe that with a little practice, any person could get along without smoke. I can handle hive after hive without it.

Lewiston, Mo., June 30. H. MANSPERGER.

[You can get along without smoke at times, but it takes more time. A little whiff over the tops of the frames will so mollify the bees that you can work faster ordinarily.]

QUEEN-CAGES FOR LONG DISTANCES.

What kind of cage or device do you consider the best for shipping queens long distances (say 18 days' journey)? Is it absolutely necessary to supply queens with water for such long journeys? WM. STYAN & SON.

San Mateo, Cal.

[We prefer the Benton cage for long distances. We formerly put small tin bottles of water in the cages; but within the last few years we have not found it necessary.]

CONTRARY TO NATURE; A NUT FOR DOOLITTLE TO CRACK.

Not long since a pioneer bee-keeper was passing through my apiary; and observing a large bee (it was a drone) he said they were the *she* bees. He said he did not believe in killing such bees, as it was "against nature." Shades of Doolittle! Somebody is certainly behind the times. Doolittle says he cuts their heads off in the combs. Leading lights sometimes disagree.

Shiloh, O., July 19. T. F. KIMEE.

[Friend K., I have got to be a little suspicious of anybody when he goes to preaching "against nature;" that is, when somebody complains that you are against nature because you *use* the intelligence that God has given you.]

NAILS AS SPACERS FOR FIXED FRAMES.

I have watched the discussion on fixed frames, to see the different methods of spacing. I take some of those wire nails, drive in the top-bar about an inch from each end, just far enough to space the frames. I have a gauge, and lay it beside the nail and drive until it is

even with my gauge. I do not remember the width of the gauge without going to measure, but that depends upon the width of the top-bars. The nails answer every purpose for me.
Shreve, O., July 18. C. B. WAY.

THE NEED OF THICK TOP-BARS.

I lost a valuable colony of Italians by the Simplicity hive becoming so sealed between the first and second story, and not being able to separate. When the bees were dead I took severe measures; and after separating, I found the worms had taken possession. This colony had given me over 50 lbs. of box honey each season. A. FAMARISS.
Beverly, N. J., June 14.

[This is why we look forward to thick top-bars as doing away with all this trouble. The trouble was not in the hive, but in the thin top-bars which allowed burr-combs to be built.]

SPACE BETWEEN FRAMES; IN FAVOR OF NARROW SPACING.

In getting brood into my little combs for fertilizing hives, I have experimented a great deal on space between combs, and have come to the conclusion that ⅜ (a little scant) is about correct. At this space all the combs are filled to the top-bars perfectly flat and smooth. In order to maintain the space accurately we use little spacers to attach to our finger, like a thimble. All our frames are one inch all around, and cut with perfect accuracy.
Marlboro, Mass. E. L. PRATT.

[Thanks for the result of your experience. I am pretty sure that 1⅜ from center to center is not too wide, and perhaps we can do with less.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 167.—*Will it be safe for me to ship off comb honey without brimstoning it? 2. Did you ever know worms in sections where there was no pollen?*

It may and it may not be. 2. Yes.
Ohio. N. W. A. B. MASON.

Yes. 2. Yes, but not very often. Worms can not live long on pure beeswax.
Illinois. N. W. DADANT & SON.

I have never shipped comb honey. 2. Yes, a few.
Wisconsin. S. W. E. FRANCE.

Yes, if shipped early, and if it contains no pollen. 2. No, I think not.
Vermont. N. W. A. E. MANUM.

I don't know. I have never brimstoned any. 2. Yes, brood will bring worms; occasionally a worm without.
New York. C. P. H. ELWOOD.

Usually, yes; occasionally, no. If eggs are laid on the combs they will hatch with or without pollen. I do not think the larvæ would mature without pollen.
Michigan. C. A. J. COOK.

The least honey we get is brimstoned. I would not brimstone my honey unless it were necessary. 2. I generally found pollen in the combs that had bee-moth in.
Ohio. S. W. C. F. MUTH.

Yes, sometimes; sometimes no. 2. Thousands of them, where there was no visible pollen; but the microscope reveals pollen where it is not seen by the naked eye.
New York. C. G. M. DOOLITTLE.

I have not found it safe for me to do so. 2. Oh, yes! lots of times. They are very apt to come on the edges of cells close to the wood. I have even seen them come on foundation.
Illinois. N. C. C. MILLER.

I think so. I have raised and shipped a number of tons of comb honey, and I never brimstoned a pound of it. 2. No, nor did I ever see fifty sections with worms in from any cause.
Illinois. N. C. J. A. GREEN.

If it has been kept for some time in a warm room I should prefer to fumigate it before shipping in very large quantities. 2. Yes, except what was contained in the honey.
Ohio. N. W. H. R. BOARDMAN.

I am not an extensive comb-honey producer, but I have not brimstoned what little I have had. I heard no complaint from the 2500 lbs. that I sent out last season. 2. To some little extent.
Wisconsin. S. W. S. I. FREEBORN.

If taken off in hot weather and shipped immediately there would be danger of worms unless brimstoned. 2. I have known the surface of sections to be webbed over and the cappings destroyed in many crates where there was no trace of pollen.
New York. E. RAMBLER.

No, not at this season (early summer). 2. Yes! i. e., where there was no pollen practically—no cells of pollen; but there is a little floating pollen in most, if not all comb honey. Sometimes the amount is so small as to be undiscernible to the naked eye, and would probably cut no figure in the moth or worm question.
Illinois. N. W. C. MRS. L. HARRISON.

Yes; if you have the right kind of bees, such as we think we have, and use proper care about your apiary and buildings, you will have no use for brimstone. I do not think I have seen a worm in any of my comb honey for many years. I believe it is a physiological fact, that the moth-worm can not develop without the use of pollen.
Michigan. S. W. JAMES HEDDON.

I think that in most apiaries the sections are rarely troubled with worms. I would not fumigate unless there were reasons to apprehend trouble. 2. I do not positively know it, but I have the impression that they do sometimes occur. I believe it is several years since I have noticed a worm in my comb honey at all. I lay it to my farming neighbors not keeping bees, and tolerable care on my own part not to breed the mothers of the mischief.
Ohio. N. W. E. E. HASTY.

I think I have said in the A B C book, that I would never go to the trouble of brimstoning honey until I discovered the minute worms somewhere about the honey; and I have also said, further, that with the Italian bees the fumigation is seldom if ever necessary; and I believe that a majority of the answers above pretty nearly agree to this. It just now occurs to me, that, if the moth-worm can not mature without pollen, is it very strange if the larva of

the bee can not, in a like manner, mature without pollen as well as honey for the nurse-bees?

NOTES OF TRAVEL AMONG YORK STATE BEE-KEEPERS.

AT G. M. DOOLITTLE'S.

The ride by boat on the beautiful Lake Skaneateles to Borodino was fine. The water was so clear that, just before starting, I could see large fish at a depth of 12 or 15 feet off the dock. As we steamed out into the lake, the beauty of the scenery became more and more manifest. The shores rise gradually from the water's edge, and off in the distance little towns are pointed out.

"Over in that direction," said the captain, in answer to my inquiry, "is Borodino."

Doolittle has a beautiful location, I thought. There are never any mosquitoes around this lake, I am told; and the water is so clear, and the shores so inviting, it is a wonder that the lake is not more visited by pleasure-seekers. In about half an hour I was landed on the Borodino dock. As it was rather late I put up at the hotel. The following morning found me on the wheel, sailing toward the home of Mr. Doolittle, for his place is about a mile out. I looked along the road to see if I could pick out Mr. D.'s home. That place doesn't look exactly like it. Finally, from the top of a hill I see a very pretty country residence. Every thing about the place shows neatness and taste, and the buildings are well painted. I wonder if *this* is not the place. As my bicycle travels noiselessly along, suddenly an apiary looms up in the rear. Yes, there is a bee-cave. This *must* be the place, and so I turn in. I lean the bicycle against an overspreading apple-tree by the side of the house.

"Is Mr. Doolittle in?" I inquired of a man in the barn.

"He is in the shop and will be out presently."

I strolled into the apiary meantime, wondering whether my friend would recognize me. After waiting a moment somebody steps from the shop. He has a sandy beard, and he looks like a portrait I have seen somewhere.

"Good morning!" I said. "This is Mr. Doolittle, I suppose?"

"And is this Ernest?" said he, grasping my hand. "I had not expected to find you wearing glasses."

"I have been using them ever since I left school, five years ago, and ought to have begun wearing them sooner."

Together we went into the shop. I noticed he was very careful to close the door after him; and the fact that there were no robbers about was pretty good evidence that this was his habit.

As I expected, every thing was orderly. In one end of the shop was a small boiler and engine; near the center of the room, a saw-table; beside the windows, a work-bench. Two rooms were partitioned off. One was a bee-proof honey-room, and the other a general study, or sanctum, where he can be in seclusion and write his articles for print. In the latter room he showed me his Hammond type-writer, the machine that does the nice work he sends out. I found it was very simple, and easily operated. A large telescope, mounted upon a substantial tripod, occupied a space upon the floor. The owner not only studies the handiwork of God as he finds it among the bees, but he is delighted with what he learns and sees beyond the vale of this world.

"Mr. Doolittle," I said, "I notice you are interested in one of the branches of optics. Why don't you take up photography, and so illustrate your articles occasionally?"

"Well," said he, laughing, "I had thought of that very thing, but I came to the conclusion that Doolittle had no time with all his other work, to fuss with it."

When it is remembered that he does *all* his work in the apiary, wraps and directs all his queens, answers all his correspondence without the aid of a stenographer, writes regularly for several periodicals, makes all his supplies, keeps up a good garden, takes care of a horse, to say nothing of the services he renders to his church and town, we comprehend somewhat the force of the remark, that "Doolittle has no time" for another branch of optics.

He is precise and methodical in all his work, especially so in queen-rearing; and as it is not an easy matter to get help possessing all these requirements, Doolittle prefers to do Doolittle's work.

Upstairs in the shop Mr. D. has a collection of bee-implements, old and new. He showed me a box containing some old-style honey-boxes, which a few years ago, out of the kind *intentions* of a supply-dealer, had been sent him by *express*. The charges were $7.50. There was no letter of explanation. Mr. D. paid the charges, and the boxes he has used for kindling-wood. At other times hives and other implements had been sent him, charges paid. He had never even opened some of these packages, as he had no use for them. I take pains to mention this right here, as we have been many times served in the same way. While all this is prompted by kind intentions, don't send stuff without first writing to see whether it will be acceptable.

But, to return:

Mr. Doolittle lighted his smoker, a Bingham.

"I suppose," said he as we started, "you don't wear a veil."

"Oh, yes, sir! I do. It's my father you are thinking of."

At this I pulled out my veil, for I carry one with me everywhere, and we together went among the bees.

We looked at the progeny of some of his breeding queens. They were very beautiful. The bands were of a deep yellow, and four in number. Although our friend made no claims as to the fifth, the latter (or what looked like it) showed faintly. The bees from his breeding queens were as handsome as any I ever saw. He did not claim to have originated them, he having obtained them of a bee-keeper who is now out of the business. Mr. L. C. Hearn obtained one of these queens of Mr. Doolittle, and Mr. Timpe, in turn, of Mr. Hearn.

"Now," said Mr. Doolittle, "what next would you like most to see?"

"Suppose we look at some of the cells reared in upper stories. I have my camera here, and I should like to see and show to our readers whether you practice what you preach."

We selected cell-building colonies at random. In the first one we examined there were almost perfect rows of cells built on the artificial bases.

"Hold on a minute," I said, "and I will take a shot at it with my camera. There, I've got it."

"Why," said he, "as quick as that?"

"As quickly as you can snap your fingers," I replied.

So on we examined and photographed four or five other lots of cells; and as soon as I can I will present you with a fair sample of cell-building, in the shape of a half-tone engraving. And so all through, Doolittle practices what he preaches.

"You have your apiary in an orchard. I believe I like that better than grapevines."

"I don't like too much shade," said Mr. D. "I have noticed that those colonies under those very heavy shade-trees do not breed up as early, or do as well as those less shaded. There are two trees" (pointing to two very densely foliaged apple-trees) "that I shall have to cut out."

About this time Mrs. Doolittle desired him to get some vegetables from the garden. In the meantime I got off upon high ground and took views of the apiary, house, and general premises. The bee-cave had "caved" in recently, on account of the moisture from the bees rotting the boards. To prevent any reoccurrence of such a thing, Mr. D. proposes to use flagging for roof-boards, and then cover with dirt as before.

At dinner we had one of those unconventional bee-talks, in company with another bee-keeper whose name I do not now recall, but who happened to be visiting Mr. D. at the same time; and even after dinner there were so many things to talk about that it was hard to break away.

ON THE WHEEL AGAIN.

I oiled my bicycle, fastened the camera under the seat, and was soon on my way spinning past the shores of another beautiful lake, Otisco by name. This lake, like Skaneateles, is only a short distance from Mr. Doolittle's home. After leaving the lake I wended my way to Marcellus, the home of a once prominent bee-keeper. I continued on my journey, passing teams, until I found myself back in Syracuse. I made the distance in about 3 hours. I remained in the city over night. Next morning I was in doubt as to whether I should take the train or the wheel. My next run was to be a long one, and I had thought of taking the cars to save time. As I paid my bill at the hotel the clerk told me that

A STRIKE

on the New York Central R. R. had been inaugurated during the night, and that it was doubtful whether any trains would run during the day. As far as *I* was concerned, I did not care much. As the depot was near at hand I went over to satisfy my curiosity. Yes, the trains were stopped, and the agents would sell no tickets to would-be passengers. The strikers were scattered here and there. A company of militia were stationed at the depot. One passenger was cursing and swearing. He had got to make an appointment, and his anger knew no bounds.

"I wish I were fixed as you are," addressing me as he saw the bicycle.

I did not stop to swear and curse with him on the event, but started across the track, and, approaching one whom I took to be a striker, said:

"Are you going to pull out to-day?"

"Guess not, sir."

"Well," said I, "*this* train of mine hasn't struck yet, and I think I'll pull out;" and with this I started toward Starkville, thanking good fortune that "strikes" don't stop *all* the wheels of progress, for my wheel at that very moment was spinning along at a rapid rate. I continued until I had gone about 30 miles. I went a little out of my way on account of imperfect directions as to the road. It being Saturday, and as I could not reach Starkville, the home of Mr. Elwood, without riding on Sunday, I concluded to ride to the next station on the Central R. R., if I could get aboard of the cars. I found that there was a *chance* of getting on a train, and fortunately was able to get to Fort Plain toward evening. Starkville, I was told, was about 9 miles from Fort Plain. As I saw the hills, some of them fully a thousand feet high, my heart sank within me.

"It is late," I said to myself, "and to go over an unknown and lonely road among those fearful hills is not inviting."

I buckled up my courage and started; and, to my surprise, in about an hour's time I was before the door of Mr. Elwood, the man who manages successfully over 1300 colonies. The hills were not as bad as they looked, and the road was not as lonely as it seemed.

AT P. H. ELWOOD'S.

I met with a hearty welcome from our big bee-keeper—large in several senses of the word. It was a little embarrassing on my part to come upon a family I had never seen, just at supper time, Saturday night; but when I went to the hotel at Starkville I was informed that Mr. Elwood had left word that I should come straight to his home, early or late; and accordingly I turned the wheel about, and was soon shooting down (or, rather, up) the road leading to the Elwoods. Their home is situated at the base of a range of hills (I wanted to call them mountains) of anywhere from 500 to 1000 feet above the valleys. To an Ohio boy this was all new, and I feasted my eyes on the scenery to my heart's content.

The next day was Sunday. I threw off my bicycle suit, and put on ordinary civilian's clothing. As my luggage on the wheel had to be compressed into a tight bundle, my clothing, I fancy, looked as if it had been through a—well, a crimping-machine or something of that sort. I was glad to go to church with the family; and it didn't matter at all, even if their denomination was different from mine. We all love the Lord, and we differ only in unimportant details as to beliefs. I enjoyed the services, and enjoyed, also, being in a God-fearing family for the Sabbath.

The scenery about Starkville, to an Ohio boy, is grand. While the country is not really mountainous it is very hilly. From many of the higher summits the whole Mohawk Valley spreads out before you, and off in the distance the dim outline of the Green Mountains can be seen.

Mr. Elwood kindly offered to take me around the country; and accordingly, the following Monday morning, one of the bee-wagons was hitched up, and we took a ride through the surrounding county, to take in some of the sights, and of course, in the course of the day, visit bee-yards. After driving to the top of one of those high hills and taking a general survey of the Mohawk Valley and adjacent country (a magnificent view, by the way), we visited a beautiful glen where there were some very curious rock formations—caves, waterfalls, and running springs. My Kodak was in readiness, and I took a number of shots (i. e., views). Vegetable matter that remains for a few years in the water of this glen petrifies. Among the specimens we selected were almost perfect petrified beach leaves, fragments of moss, etc. It was here first that I noticed what seemed to be true of all this section of country; namely, that the basswoods seemed to grow much more thriftily than in Ohio. The leaves were enormously large. One we measured was 14 inches long, nor did this seem to be exceptional. At Mr. Doolittle's I noticed that the basswoods were of larger and better growth than with us, while on the sidehills of Starkville they were even more so. We started on our journey again, and were discussing as to whether the large-leafed basswoods were any better for honey than the smaller-leafed trees, when we drove up to the apiary of J. R. Tunicliff, of Vanhornsville. Mr. T. owns some 400 colonies in three or four outyards. He formerly used the ordinary hanging frame; used it faithfully for 50 years. Finally, in 1878, he adopted the closed-end frame, which he is still using. This frame, instead of *stand-*

ing upon a flat tin on the bottom of the hive, *hangs* in an ordinary wooden rabbet by means of a projecting headless wire nail jutting out from the top-bar. In other words, it is a hanging frame with closed-end bars. In connection he uses a wooden thumb-screw to reduce propolis accumulations. Mr. Tunicliff was very enthusiastic over this arrangement. He declared it the best frame extant. As to the thumb-screw, he owed Mr. Heddon nothing for it, for he borrowed it of Mr. Manum, who had used it for many years before Heddon. He did not consider Mr. H. the first one to use closed-end frames in a tight-fitting box, for he had used them both in combination since 1878.

He had 400 colonies on these frames; and to show me how nicely they worked he handled several hives. They certainly did work nice, and, as Mr. T. said, he adopted them to save time in handling. The swinging frame took too much time in spacing and too much time all around. He was very enthusiastic over his hive. I took a Kodak view, and will perhaps give you a picture of it later.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

THE VALUE OF STRAWBERRY-PLANTS TURNED UNDER.

On the 15th day of July we plowed under a bed of Sharpless strawberries that had borne an excellent crop of fruit, and had made a prodigious growth of foliage, runn rs, etc. Before turning them under, however, the ground was covered with a heavy coat of stable manure. With the manure and vines together, the plowman had considerable trouble in getting them all turned under nicely. In fact, a man had to follow (with a hoe or similar tool) to push the tangled vines from under the plow-beam. When it was all turned under, however, it was harrowed and rolled until fine and compact. Then a heavy coat of ashes from our steam-boilers was put on. These ashes were mostly from coal. Considerable basswood and pine, however, goes in with the coal. In order to get out the coarser portions we run it through a sieve, or riddle, such as is used for sifting sand or gravel. These ashes were put over the surface, from one to two inches deep, and harrowed lightly into the mellow surface soil. In this we sowed, the same day, radishes, lettuce, and turnips. Well, on the 15th day of August, just thirty days from the day the seeds were put in, beautiful radishes were ready for the market—in fact, the finest I ever saw. A nice shower fell soon after the seeds were sown, and the ashes had sufficient strength to destroy all insect enemies. Not even a flea beetle punctured the first leaves of the young radishes. They grew with a rich dark green, and a rapidity I never saw them grow with before. Neither have I ever had *good-sized* radishes fit for market in just thirty days, before. The varieties were Early Frame, Chartier, and Chinese Rose. The roots were beautiful, glossy, scarlet, straight, and true. In fact, we could easily have made a bunch of Chartiers equal to the colored plates sent out by the originator. The Early Frame may have been a little ahead of the Chartier; but three days later, the Chartiers were much the larger and finer. In three days more (thirty-three in all) we had Early Bloomsdale turnips fit for the table. They, too, were wonderfully handsome, both radishes and turnips being crisp and sweet, far beyond the ordinary. The Grand Rapids lettuce was also fit to put on the market-wagon in thirty days. Of course, it did not make large heads in that time, but the leaves were as large as one's hand, and the plants made very fine basket lettuce. How much of this is due to the strawberry-plants and how much to the manure and how much to the ashes, we can not tell; but I think just about the combination was needed for the results noted. Mr. E. C. Green, of the Ohio Experiment Station, looked them over yesterday, and he said he had never seen any thing to excel it in the way of a crop, in only thirty days. It should be remembered, that the ground was our best creek-bottom ground that had been enriched and worked over for the past four or five years.

Adjoining the above patch are some of our rows of strawberries which were also put out with the transplanting-tubes on the 15th of July. We did not think best, however, to put strawberries where strawberries had been the season before. These strawberry-plants, in 30 days have sent out runners and made little plants so that some of them are well enough rooted to bear removing from the parent plants; that is, by the aid of the tubes. Now, these few results give one a glimpse of what is possible in market-gardening, as well as in strawberry-raising. In forty days the radishes can easily be cleaned off, and another crop of something else can be turned off before winter. I am planning to transplant some of the Grand Rapids lettuce where the radishes are taken off, and thus get large heads before winter. With this high-pressure treatment, manuring, and tilth, there are quite a few crops that can be taken off the ground in forty or fifty days. *The energetic, go-ahead gardener, should have them right off promptly the very day the crops have arrived at their best, and more seeds or plants should take their place within one hour.* I know from experience that it is a very hard matter to push things like this; but I tell you, my friends, it pays.

On another piece of ground, when I saw the crop had almost reached maturity I allowed the weeds and purslain to grow for a while. It did not take the weeds more than a week or ten days to cover the ground with a wonderful growth while the crop was ripening; and just as soon as the crop was removed, weeds, tops, and all refuse matter were plowed under. In doing this, you want to be very careful that no seeds of purslain or of any thing else have become matured enough to grow; for if you do not, you will seed the ground with weeds. Keep your eye carefully on the weeds, and a good many times you can have a heavy growth to turn under, almost as well as not. Be careful, also, that this heavy growth does not take any thing from the maturing crop. A great many times it is better to wait a little until the crop is mature enough to be gathered, rather than to undertake to clean out the patch from weeds, etc., just before maturity. In fact, the nicest way in the world to make *sure* with purslain is to turn it under out of sight. Keep the cultivator going, however, so that no chance sprig stuck up through the dirt shall get on top of the ground and grow again. At this season of the year (Aug. 21), if any piece of ground, enriched as we have ours, is left idle for a week or ten days, the weeds will make their appearance. I would rather have the Acme cultivator go over the ground, say once in five or six days, if we can manage to have it.

GARDENING FOR SEPTEMBER.

During this month is the time to put out cabbage-seed for cold-frames. The Jersey Wakefield is the only kind we use for this purpose. Sow the seed in good rich soil, rather thinly, so as to get nice plants. When the leaves are as large, say, as a half-dollar, they are ready to transplant to cold-frames. I always enjoy this kind of gardening in the fall of the year. It looks nice to see these plants, so fruitful and bright and fresh, just when frost is ruining so many other things. If you have not put out your spinach yet for over winter, now is a good time to sow it. Corn salad can be put in at the same time, and both may be transplanted to cold-frames for use during winter. Now is a good time to sow Grand Rapids lettuce seed in view of having lettuce for Thanksgiving. In cities, nice crisp lettuce at Thanksgiving has got to be quite the fashion. Now, we are quite willing that people should follow the fashions just as far as they like, providing it runs into nice garden vegetables. Winter onions can be put out now tiptop. It is too late to sow turnips; but if you have ground in nice order, and turnips that need thinning out, you can get very nice ones by transplanting. One season we raised nearly a hundred bushels of turnips by transplanting them into cucumber ground after the frost had killed the cucumbers.

COLE'S NEW AGRICULTURE AT THE PRESENT TIME.

In excavating for our new building, it became necessary to go right down through the reservoirs of the new agriculture. Now, as you may know, I have been somewhat disappointed in the working of the reservoirs that cost so much money. A good many plants do not seem to do very much better over these reservoirs than anywhere else. But I have every year noticed this: After we get through with them, and they are abandoned on account of the lateness of the season, squash and melon vines are sure to spring up and grow with unusual luxuriance. This year a single squash-vine was growing with a rapidity, right under the glass, subject to the intense heat of the sun, that I rarely if ever have seen equaled. Although it had no water at all, and the top of the ground was intensely hot and dry, this vine scarcely wilted under the midday sun. Well, when we came to dig down through, although it was a very dry spell, we found the reservoir full of water, and the roots of the squash were down and spread out in the water. They had gone through at least 4 feet of earth, and then between the loose stones, to find water. This vine has now 13 great Boston Marrow squashes, and is still growing at a tremendous rate. A single banana muskmelon-vine near by has now covered perhaps an area of 10 feet square, and 7 great melons lie almost touching each other. When Father Cole spoke about having the reservoirs 6 feet deep, I thought he was down altogether too low; but I now discover it is not a bit too low for certain kinds of vegetation; and, furthermore, that at this depth the reservoirs in the clay soil will keep constantly filled with water; that is, if made with the overflow so as to keep just two feet of water in the bottom. It looks funny to see such rank vegetation growing up through a soil parched with intense heat, and as dry as dust.

GETTING STRAWBERRIES FROM RUNNERS BEFORE THEY ARE ROOTED.

One suggestion in respect to strawberry-plants. It is almost always so dry here that we can not get any plants, and I have wished there might be some way to do so. About two weeks ago I cut a lot of runners and put them in a 4-inch soap-box near the well, and they are doing nicely. Why would not this be better for some of us than taking up the plant, as you suggested in Aug. 1 issue? S. T. WALKER.

Forest Grove, Or., Aug. 11.

Friend W., your plan is already in use. By shading the ground and keeping it constantly wet, you can make the buds start before they show any root at all. This, however, requires considerable care and skill. After very small roots have formed, they may be put out in beds. By keeping them watered and shaded you will very soon get nice plants. You do not say that you watered them often, but we infer this from your expression of putting them near the well. The advantage over setting at once in the field is, you can put a good many plants in a small bed of very rich ground. After they get strong roots they can then be put out in the field.

STRAWBERRY-PLANTS FOR THE GARDEN; HOW CLOSE CAN THEY BE PUT?

I want to plant a small strawberry-patch for family use, about 30 by 40. How close can I plant them? I will fertilize them well. How will it do to mulch them with fine straw so deeply that not a weed can show its head?

L. A. DUGGAN.

Cuthbert, Ga., Aug. 21, 1890.

Terry, in his strawberry book, directs to thin the plants out in the fall, so that none of them shall be nearer to each other than 6 inches. From this I gather that, where ground is valuable, plants may be set in the fall as near as 6 inches, leaving a path one foot wide between beds 3 feet wide. When put so close, however, you would need to keep off every runner; then mulch the beds with cut straw, and the paths with long straw, and you will have pretty nearly the Terry system.

WINDMILLS AND TANKS; SOME SUGGESTIONS.

I am thinking of having a windmill and tank. I see from GLEANINGS that you have one of each, and I desire, if you please, to have your opinion as to the kind that is best; and is there any solution of the difficulty with wooden tanks, that, if they get even partly empty, in a short time the upper portion of the staves shrinks, and they leak when the water is pumped in again? Do you find that to be a drawback? E. CALVERT.

Nashville, Tenn., Aug. 12.

Friend C., almost any of the windmills advertised in our agricultural papers, made by responsible men of good standing, will answer your purpose. The first one we bought was the Eureka, made by Smith & Woodward, Kalamazoo, Mich. Our larger one is the Eclipse, made by Fairbanks, Morse & Co., Cleveland, O. During a very dry spell this summer, when there were several days that no wind blew, our big tank did get a little dry around the top; and when a brisk wind came up suddenly I noticed the water coming through the cracks so as to run a small stream in several places. This was on the south side, where the sun struck the staves. As soon as the sun went down, however, the leaking was reduced to

drops, and by the next morning there was not a single drop. If the tub is properly put up, and the hoops drawn up with appropriate bolts, I think there will be no trouble. Don't drive the hoops to get them tight. Have them drawn up with good heavy bolts.

REPORTS ENCOURAGING.

120 LBS. FROM ONE COLONY.

I took off 120 lbs. of comb honey from one swarm last season up to August 31.
Winfred, S. Dak., July 22. J. W. CHAPIN.

A GOOD REPORT FROM CALIFORNIA.

The flow of honey is good here now. I get from 1000 to 1200 lbs. each week from 180 colonies. My crop will be from 8 to 10 tons this year. G. W. CAMP.
Armona, Cal., Aug. 19.

15,000 LBS. FROM 200 COLONIES.

I have taken this season from 200 stands, 15,000 lbs. honey, principally extracted.
Riverside, Cal., Aug. 19. L. SARLES.

FROM 39 TO 100, AND 3000 LBS. OF HONEY.

I have taken 3000 lbs. of extracted honey from my bees this year, all white clover—the nicest honey I ever got. I had 39 colonies, spring count; increased to 100.
FRANK M. JONES.
Buffalo, N. Y., Aug. 2, 1890.

15,000 LBS. FROM 80 COLONIES.

I am working about 80 swarms for section honey, and it looks as if I would make pretty near 15,000 sections (1 lb). The bees are working well now, and have been working in the sections since the last of March. I am working about 15 swarms for extracting; they are doing well. A. B. MELLEN.
Acton, Cal., July 25.

198 LBS. FROM ONE COLONY.

I began this spring with 15 swarms, and now have 30, and have taken nearly 2000 lbs. of honey up to the 9th inst. From one hive I have taken 198 lbs.; beginning to extract July 1, 60 lbs.; July 11, 40 lbs.; July 22, 33 lbs.; July 30, 37 lbs.; Aug. 9, 28 lbs. E. STEVENSON.
Salt Lake City, Utah, Aug. 11.

A GOOD REPORT FROM NEW JERSEY.

I have taken GLEANINGS since last February, and in that time I have not seen any thing in it from New Jersey. I see it stated in your last issue that the honey crop would be short. Well, I have some bees here. They are Italians and albinos, and I have one of Siberian. They have done very well so far this season. Some of my swarms have made over 100 lbs. this season, and none less than 50 lbs. We had no swarms in May this year in this part of the State, that I can hear of. Our white clover has been a good crop. It ran about six weeks, and now our fall flowers are coming out, with prospects of a fair crop. I have four swarms from three last year's colonies, and I had to use a bushel basket to take them from the tree in, and they filled it within two inches of full, which is the largest swarm in South Jersey, that I can hear of. One swarm of albinos swarmed twice; second swarm not so large as the first. My Italians have swarmed but once this season. Our bees in this section have been carrying pollen since last Christmas. The man I got my bees of has been in the business, or had bees, for 16 years, and this year, he says, beats all he has seen for work. Bees do not swarm this year until they fill their hive, pound sections and all. We do not extract any honey here, but all pound sections is what we want. It brings a fair price. There are some black bees in this section, and we are trying to get rid of them, which will be a good thing if we succeed. There are not many here that keep more than ten colonies over winter, but I intend to see what can be done here with the little workers. I intend to have about 75 colonies, and then I can tell what there is in the business here. I think I am on the right road to make it pay here.
Vineland, N. J., Aug. 11. L. S. JONES.

REPORTS DISCOURAGING.

The honey crop is very short, one-fourth of what we had last year. AUSTIN DEXTER.
Boscobel, Wis., Aug. 20, 1890.

If bees in our part of Nebraska get enough honey to winter on they and their owners will be in the biggest kind of luck. So far they have not got one quarter enough.
Dorchester, Neb., Aug. 17. C. F. THOMAS.

Honey crop a failure this year with us. I don't think we shall have over 500 lbs. of honey from 200 colonies, spring count.
RANDALL & SEARES.
Girard, Pa., Aug. 18, 1890.

Our honey harvest this year so far is very poor. Basswood not a quarter of last year's crop. Clover is worse, if any thing. We have a very poor show in Fayette County, for 1890.
A. F. RANDALL.
Randalia, Ia., Aug. 1, 1890.

The honey crop here is a complete failure. I shall not take 50 lbs. from 50 hives. My neighbor, who has 180 hives, has not taken a pound. What is the matter? Only 8 new swarms, and some of them weak. W. F. COBB.
Mona, Ia., Aug. 16, 1890.

No honey. New swarms would have starved if they had not been fed, and old ones made only about enough to carry them through the dry spell, which has recently closed by reason of plenteous rains. We had to feed cattle and horses through July and the fore part of August, just as we would in winter. Pastures and meadows are all burned up. We had very few swarms of bees, and scarcely any use for the goods we got of you this year. We lost many bees and plants which were growing finely when the dry weather set in. W. H. COMBS.
Marceline, Mo., Aug. 21.

Bees have done very poorly this year, but are working in buckwheat very fast now. I have one hive which I have extracted 104½ lbs. of honey from. This is more than double the quantity any other hive gave. These are pure Italians, dark leather-colored ones, very gentle. If this hive has not a honey queen, what one has? I have 43 hives of nice bees now. They have done very poorly in this locality this year; no swarming to speak of. I should no more think of going without GLEANINGS than I would without bees. As I am a young man, only 22, I have a great desire to settle in Colorado and run the business to its full capacity.
EDGAR BRIGGS.
Manchester Bridge, N. Y., Aug. 11, 1890.

MYSELF AND MY NEIGHBORS.

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from the evil.—JOHN 17:15.

While I write, an east and west railroad is building through our town; and yesterday 22 teams and 30 or 40 men were employed in making a cut through our own grounds. As this cut is from 2 to 12 feet in depth, it has required quite a force of men for about two weeks; and during these two weeks it has been my privilege to get pretty well acquainted with the average gang of railroad employers and employes, with their horse teams and mule teams, with their plows and scrapers, their pick-axes, and necessary adjuncts for camping out along the line. There is, I need not tell you, a general prejudice against this class of people. Many look down upon them; and perhaps a good many who take their ease and wear fine clothes say in their hearts as they look down upon them as they work in the deep cuts going through the hills, something as the Pharisee said in the parable: "God, I thank thee I am not as"—these men who have to work in the dirt to earn their daily bread. I know this is not the prevailing feeling in all hearts, for most good people look upon these friends as the pioneers, or those who go before and prepare the way for this great machinery of traffic and commerce. Great crowds of town people come down and gaze upon the ruin this railroad has made through my market-garden. The finest crop of bush lima beans is right in its pathway, and they would have been ready to pick in a week or ten days. But the men and teams could not wait. One of the finest patches of Ford's Early corn I have ever raised was also right in the pathway, and this would have been fit to pick in a week. But it had to go. When people expressed sympathy, and said it was too bad, I told them that we were glad to remove the garden-stuff for something so much better.

"Why, do you consider the railroad so much better than a garden?"

I have explained the matter so much that I fairly get tired of talking it over. To be sure, I consider the railroad better than a garden, or else I would not have given $2500 to have them come through. Not only this, I gave them a strip of ground right through the center of our grounds, that was worth to me, under the circumstances, nearly if not quite $2500 more. For six months back I have been expecting the work; and while I have been anxious to see them, there has been at the same time a feeling of dread. In some way, from what I had heard I had got an idea that the railroad-construction folks were a class of people without hearts or souls; but in some respects I have been agreeably disappointed. The chief engineer and the surveyors are very nice people indeed. In fact, some of them are boys who graduated from our own town. The chief engineer kindly consented to spare my carp-pond, although the right-of-way line went right through the middle of it; and they also arranged so as to save my fruit-trees. Not one had to be cut down or removed. In Ernest's absence I fear I neglected business somewhat, in order that I might improve the opportunity to get as well acquainted as possible with these people who carry the lines of progress in their hands. It was two weeks ago this morning (to-day is the 27th) since they commenced. I had just finished my breakfast. We had read our Bible-lesson, and I had prayed for grace and strength to take up whatever trials the day might bring. As I passed down the walk toward the factory I knew there might be trials in store for me, greater than I expected, but I was glad that I did *not know* what they were. Before I reached the factory, however, one of the boys said, "The railroaders, with a great string of plows, scrapers, and other tools, are marching down to your garden."

I made a short cut, found the boss, and told him that, while every thing was at his disposal, I should be very glad if he would help me a little in protecting my crops, and also asked of him the privilege of removing the surface soil before they commenced their excavations. In a few minutes he surprised me by his hearty good will and emphatic directions to the teamsters.

"Why, Mr. Root, we will do every thing we can to avoid unnecessary damage to your stuff; and as to the surface soil, if you will stay here and boss it we will remove it for you."

From that moment pleasant relations have been kept up until the present time. May be you begin to wonder why I go into all these details about something comparatively unimportant. Perhaps you wonder what it has to do with the text. Just this: I knew by past experience, that, as soon as the men got well at work, cursing and swearing would be the order of the day, and I was not mistaken. I had resolved to be with the men in the outset, and get acquainted with as many of them as possible; and I wanted, if I could, to manage to remonstrate at the first oath that was uttered. I think I did, and for some time I was greatly encouraged to see how pleasantly they agreed with me, and gave me a sort of half promise not to swear, even if things did go wrong. It was not very long, however, before some pretty loud calls came from the factory and different parts of the grounds. I could not give my whole time to the new railroad. Before the men got thirsty I showed them my little spring, and got one of our boys to carry around water, with a dipper and pail. I lent them an ax and hatchet, a chain and a pick, and a shovel; and I kept men near by to assist them. I turned the cow and the pony outdoors, and let the men have the use of the cow-barn to stable their horses; and I succeeded without difficulty in winning their friendliness and good will. But, alas! it seemed like a drop in the bucket to attempt in my own feeble strength to teach men that a railroad could be built without cursing the God who made them. The scraper we brought on the grounds to remove the surface soil was rather small for a big team, and not exactly the right shape. The boss suggested right away that we could have one of his if we would have a little repairing done on it. Our blacksmith soon did the repairing, and, in fact, we have had quite a trade in repairing their tools for them right along. When I took their scraper I removed their clevis, as we had one of our own. That it might not annoy anybody, I hung it on a stake. Somebody else took it and laid it in one of the wagons. Finally somebody drove his team up to the scraper to hitch on. The clevis was missing. By the way, dear friends, have you ever had any experience in the amount of swearing that has been called forth by the loss of a clevis? We do not swear here on our own grounds, but I have been sorely vexed many times to find the team away off in the lots, the plow or harrow all in readiness, doubletrees on hand, and no clevis. On this account we have a lot of them hung up in a special place in the tool-house. Well, this man began to swear about the delay, and then he cursed the one who took the clevis away. By this time I was right before him, with my hat off.

"Look here, my dear friend, it was I who took that clevis. I hung it on that stake, in

plain sight, but somebody else has taken it since then. Now, please do not swear this bright beautiful morning. Before night we shall have many other trials and vexations. Wouldn't it be a great deal better to take every thing coolly and patiently? You know that the Bible says, 'He that ruleth his own spirit is greater than he that taketh a city.'" He softened down, and laughed a little. By the time the man who put the clevis in the wagon had fetched it he was disarmed, and the victory was mine for the time being. Oh how I do love *such* victories! I like to come out ahead in any thing. When I used to fight by my own strength I would almost die rather than to be whipped, especially is I felt that my cause was right and just. But, how much better—how grand and glorious it is to conquer through the spirit of Christ Jesus*—to win by gentle words and by love; to catch a kindly and pleasant look from their countenances; to make them smile when they have been under the influences of an evil temper! How that little prayer wells up from my heart, "Lord, help! Lord, help!" as I think of these battles! By this time the boss was a very good friend of mine. He had not used a bad word in my presence, and I began to hope he would help me. But pretty soon I came up to him behind his back. He was swearing terribly at the awkwardness of some of the green teamsters. A crowd was around him, and there was a regular din—yelling at the horses, calling others to get out of the way, and cursing the stupidity of somebody else. It seemed almost out of place to interfere. But something had to be done, or I must give up the field. I hardly had time to breathe my little prayer. I did the best I could, but he did not take it very graciously. He muttered something about circumstances justifying extreme measures. I saw I had lost my hold on him. In the afternoon, however, he asked me who owned the lot adjoining, where they were to work next. I told him, and then he added:

"Mr. Root, I wish that lot belonged to *you*. In all my experience in my life of railroad building, I have never before found a man like you. I have never found a man before who seemed to think that we railroaders are human. Why, if I had you to deal with, a great part of my troubles would be nothing. You seemed glad to have us here in the first place; whereas everybody else regards us as enemies, and tries to beat us and come some game on us continually. Now, if there is any thing you want us to do, or any privilege we can grant you, just name it and we are at your service."

Pretty soon the contractor came around. He had a couple of ponies and a carriage. The boss and the contractor, of course, had quite a talk about the progress of the work—the prices they paid, etc. The contractor is a swearing man too, but his remarkable friendliness showed that the boss had made a good report in my behalf. I wanted a roadway on top of the heap of dirt, on their own ground. I asked if it would discommode them. The contractor replied, "Why, bless your heart, Mr. Root, why didn't you speak about it sooner? I would have had the men lay the dirt all in order for you. It is most entirely at your service; and when you want any privilege of the kind, do not be at all bashful—just talk right out, and give us a chance to show you that we appreciate the many kind favors you have shown us since we have come on to your grounds."

Now, friends, how much are such things worth from these officers and men in charge of our great railways? Don't you believe it will really pay to invest a few dollars in showing that you are liberal-minded, and disposed to be brotherly and human? Before they came here, different ones told me that the gang would steal every thing in the neighborhood. They said our garden-stuff would be literally cleaned out. Well, just across from our spring is a row of extra-early watermelons. They were just getting ripe when the railroad came. I supposed that I should lose some if not all of them. By and by, when picking a lot for the market-wagon, my path lay right through these men at work. Shall I tempt them by letting them see the nice melons, and that they are already ripe? or shall I take them some round-about way to escape observation? The melons were pretty heavy, and I decided to wheel them right through the crowd. There was some joking as I passed by; but, dear friends, it really does my heart good to be able to say that not a thing in the shape of vegetables or eatables has been touched since these men came into our neighborhood. I have watched the melons there, and they have remained till fully ripe. One day the pony went to one of their wagons and ate up a peck of their potatoes that are worth $1.20 a bushel. It was Sunday morning, and the campers had no means of buying any more. I told them to go into the garden right close to their camp and dig as many potatoes as the pony ate. But they declared it was their own carelessness, and I think not a potato was taken. Please do not think I am boasting of my skill in such matters. I boast not of myself, but of Christ Jesus. Paul says, "Yea, of myself I will not glory but in mine infirmities." I am glad to witness and testify to the power of the spirit of Christ Jesus, even amid the din and clamor of ungodly men.

I now want to speak of a subject that lies very close to my heart during the time of this matter of railroad-building: It is, cruelty to the mules and horses that construct our railways. And, dear friends, I have just made a discovery. The discovery is this: The key to most if not the cause of all the cruelty shown to horses lies in profanity. Profane swearing is at the root of the whole matter. One teamster gets mad and begins to curse his team. Another one takes it up, and by and by a dozen teamsters are striving to *outdo* each other in horrid oaths and curses. Then the whip begins to be used, and finally clubs; and these poor overworked dumb friends of ours are urged beyond reason, when if the oaths and curses could have been stopped they would have worked reasonably and not beyond their strength. I wonder that those who own the teams do not see this. Now, I do not know how many of the readers of GLEANINGS are in the habit of swearing; but the idea may be new to you, that it costs you money every time you take God's name in vain. The money is a small part of what it costs, but it is a point where great corporations may be appealed to if no other. Where their pocket-books suffer, they are interested. I may as well tell you that I had to give up, mostly, trying to stop the swearing. When they had only four or five teams there was not any of it when I was in sight; but when it came to 20 or 30, where they were backed up by numbers, some of them seemed really to take a kind of pleasure in letting me know that I was whipped out. Oh, but I am not whipped out, dear friends! If you will not listen to my words, the great God above will hear my prayers. I *know* there is a time coming when railroads shall be built without swearing. Yes, I feel pretty sure there are godly contractors and bosses who are doing this very thing now; and I expect to hear some of the readers tell me of instances where it has been done. The horses would do more work,

* Not by might nor by power, but by my Spirit, saith the Lord of hosts.—ZECH. 4:6.

and the men would do more work, and God's blessing would follow in every department of railroad work if it does not follow now. Accidents and loss of life would be averted, and the peace of mind that follows a conscience at peace with its Maker would give an enjoyment that is worth more than all else in this world besides.*

On account of the Sunday-school picnic to be held to-day, our regular weekly Thursday evening meeting of the Endeavor society was changed to last evening. This appointment was made without considering that the last Wednesday evening of every month is the regular time for a union prayer-meeting of all the churches of Medina. It was not discovered until it was too late to have either of the appointments changed, and therefore part of us must go to one meeting and part to another. Toward the close of the Endeavor meeting, however, I suggested that we adjourn and all go over to the union prayer-meeting at the Disciple church. By the way, there is something fresh and reviving about the Disciples and the Disciple church. I have sometimes thought that their services were a little more in the line of every-day experiences than most of the other churches; and their hymns, some way, seem to wake one up, and give him a feeling of enthusiasm that he does not always find. You know, of course, without my telling you, that I am an earnest advocate of union meetings. "By this shall ye be known of all men that ye have love one to another." If our churches could not act in accordance with the above, what a sad thing it would be! So many were coming in toward the close of the meeting, the leader was again induced to mention the subject. It was something like this: The way to get good ourselves is to be busy doing good to others. I told the friends briefly of my experience in fighting profanity among the railroaders. The leader remarked that it was demoralizing, and almost dangerous, to hear such constant blasphemy. By the way, here is a point I have not emphasized. I know by experience that it is terribly demoralizing to be obliged to be present where such talk is going on. Why, I am really ashamed to confess that, after the conflicts I have been telling you of, sometimes, when tired out and sorely vexed at something, these foul words intrude themselves upon my thoughts, and I can hardly resist the temptation of thinking how some of those horrid oaths would fit under peculiarly trying circumstances. Unless you are fortified by constant and earnest prayer, and unless you fight with all your might and mental strength against it, your peace of mind will be in danger by simply being obliged to *hear* such blasphemy. Somebody suggested that our Medina boys, many of them unused to such talk, were obliged to hear it. And another suggested that the contagion had already got into our streets, and was possibly keeping away young converts from the regular appointed meetings. Then came up the subject of our text: Shall we be more pure in heart by keeping away from these places, and closing our ears to what is going on? Then suggestions came, that I should keep on laboring among these people, while others should stay away. The meeting was prolonged beyond the usual closing hour. The real point of our text was the matter under discussion: Shall we go right into the clamor and turmoil and wickedness of the great business world, or shall we keep ourselves pure in heart by holding aloof? The answer that comes to me is something like this: The one who goes among these men and undertakes this work should be fortified and clad in the Christian armor, by an honest and sincere purpose to do these men good, and he should be fortified by earnest prayer in his closet by himself. He should go with the love of God filling his heart to overflowing; and he should pray meanwhile to be kept from Satan's strange power over those who even *hear* blasphemy against God. Unless one has this preparation he should keep away from scenes of this kind as much as possible. To go out of idle curiosity, and because one has heard of their goings-on, is dangerous; but to shirk duty, or to neglect *necessary business*, because we are thrown in contact with such scenes, would be folly. God's grace is amply sufficient to sustain his devoted followers through any such trial. I have told you of my many oft-recurring temptations. Now, when I am engaged in revival work—when I am pleading for souls—then my heart is filled with that gift of the Holy Spirit which is so abundantly promised, and I am out of danger. Satan's old temptations and allurements sink into nothingness. And right here lies the secret of being delivered, I think, all at once from the great besetting sins. When the heart is full of love to Christ, Satan can find no lodging-place, and can make no headway. At just this point in our meeting, when I was praying that God might put into my heart some of these bright promises in the shape of a pertinent text, the organist, who is one of the leaders in the Endeavor society of the Disciple church, suggested the old familiar hymn,

"Am I a soldier of the cross?"

All at once it was taken up as the audience realized that here was the true solution of our discussion, and the plain and unmistakable hand of God pointing us to duty. As I look over the words I discover they were written by Dr. Isaac Watts in 1720. The tune, Mount Pisgah, was one I have heard my father sing over and over again, away back in the days of childhood. Memory came rushing fast as I listened. My poor old father, as I well remember, was sorely beset at times by Satan; and the reason why he loved these words was because they came to him bidding him gird up his loins and *bear* the cross. Here are the words; and I am also happy to be able to give you the "air" of the music. This was engraved specially for the occasion by one of our own people. The plan is one of his own originating:

Am I a soldier of the cross—
A foll'wer of the Lamb,
And shall I fear to own his cause,
Or blush to speak his name?

Must I be carried to the skies
On flowery beds of ease,
While others fought to win the prize,
And sailed through bloody seas?

*The time has come sooner than I expected. Since the above was put in type, I am told that in the neighboring town of Lodi, this county, there is a gang of men and teams with a boss who is a Christian man. This boss told them, when they hired out, that there was to be absolutely no swearing. The gang is doing excellent work, and there has been no trouble in keeping out bad words entirely. They simply *started right*, with a Christian man to watch over them. May God be praised for it.

Are there no foes for me to face?
Must I not stem the flood?
Is this vile world a friend to grace,
To help me on to God?

Since I must fight if I would reign,
Increase my courage, Lord;
I'll bear the toil, endure the pain,
Supported by Thy word.

Now, if you have not learned this good old tune, please do so. If you are afraid to sing around other folks, go off in the lots and sing it by yourself until it brings the blessing to your heart it has brought to mine. Then sing it to your friends. Do not be bashful or backward. Be a *brave* soldier. A simple little hymn like this, sung in your own way, and after your own fashion, will have a power you have no conception of, if you *sing* for *Christ Jesus*. Use the hymn to vary the usual plan of asking a blessing at the table. Get mamma to sing, and the little ones, and afterward explain to them what it means to be "a soldier of the cross, a follower of the Lamb." Tell them that good *soldiers* do not get mad and swear, nor quarrel, nor speak bad about their neighbors. Tell the boys that, if they want to be *manly*, they must get up and *work*, and not be *carried* about. Tell them that we want men now to *fight* for God and the *right*, as we *never* wanted them before. Tell them that, before they can be *bosses*, or have *command* anywhere, they must learn to rule their own spirits. Tell them this hymn was written more than 170 years ago by the same good man who composed the little verse commencing,

"How doth the little busy bee
Improve each shining hour!"

Tell them it is the hymn that is making Uncle Amos happy just now as he fights his battles and takes up his burdens. Tell the boys that Uncle Amos is praying for *them*. And that they may fight against this sin of our national profanity and irreverence to God, bid them be *brave* soldiers in the battle for the right, and tell them it was Christ Jesus who prayed, *not* that they should be taken out of the world, but that they should be kept from the evil.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

HAS QUIT, AND EXPECTS TO STAY QUIT.

I believe I am entitled to one of your smokers, as I have used tobacco ever since I was eight years old. I was thirty-eight last Friday. I quit last January, and still expect to hold on.
Lewistown, Mo., July 28. H. MANSPERGER.

A NEW SUBSCRIBER QUITS THE USE OF TOBACCO.

Mr. E. L. Yarbrough, of Buffalo, Dallas Co., Mo., desires you to send him GLEANINGS. He has abandoned the use of tobacco, and desires you to send him one Clark's smoker. He says he will pay for it if he ever uses the weed again.
Bolivar, Mo., May 19. A. J. LOWER.

A SMOKER FOR A FRIEND.

I want you to send a smoker to me to give to brother Cook. He has quit the use of tobacco. He used it over 45 years. He is a good man, and class-leader too. I will pay if he begins using it again. A. C. BURNAM.
Camden, N. Y., July 22.

A USER FOR 20 YEARS QUITS.

In consequence of what I have seen and read in this department, I determined to stop using tobacco, which I have used for 20 years. I gratefully promise to pay for the smoker should I ever resume the use of tobacco in any form, after receiving the smoker.
Mikado, Mich., June 16. WM. R. CUMMINGS.

TWO SONS-IN-LAW WHO HAVE QUIT TOBACCO.

If you still give smokers to those who quit the use of tobacco you can send one each to Willie Godbold and Ralph Watson, both of Bowerton, Copiah County, Miss. They are both my sons-in-law; and if they ever use tobacco again I will pay for the smoker myself. WM. BOLES.
Bowerton, Miss., May 12.

SNUFF-DIPPING AMONG THE COLORED WOMEN.

I see in the Tobacco Column that a lady has quit smoking. I wish that by some means the ladies of this section could be induced to quit the very disgusting habit of snuff-dipping, which is so prevalent here among both white and black women, and thereby elevate them considerably in the estimation of many good people. S. F. HERMAN.
Tuscaloosa, Ala., July 21.

Dear friend H., I have heard a good deal about the snuff-dipping habit; and I should be very glad indeed if something could be done to awaken and rouse up these sisters to a sense of what they are doing.

A SMOKER FOR A FATHER WHO HAS QUIT.

I am very glad that I am able to ask you for a smoker, as it is just what we need. My father has quit using tobacco, and says if he ever uses it again he will pay you for the smoker, and give you all our bees, which are fourteen nice colonies. I don't think you will get the bees. Please send it to John Woods, Ayr, Adams Co., Nebraska. CORA WOODS.
Ayr, Neb., July 28.

THROWS THE OLD PIPE AWAY.

I will throw my old pipe away if you will send me a smoker, and I will not use the pipe again as long as my name is Mary. I can use rags cheaper than tobacco. If you ever hear of my using the pipe I will pay you for two smokers.
MRS. MARY. A. MORROW.
Stromsburg, Polk Co., Neb., July 21.

We suppose, friend M., that by throwing away the old pipe you mean not to use tobacco in *any* form, and so we sent the smoker.

A SMOKER FOR AN ORPHAN BOY.

Three months ago I quit the use of tobacco through the influence of GLEANINGS. I do not need a smoker, as I have one; but if you wish to send one I will give it to an orphan boy to whom I have given a colony of bees; and if I ever resume the use of tobacco I will pay for the smoker. J. B. ALEXANDER.
Hartford City, Ind., Aug. 7.

We take pleasure in sending the smoker for the orphan boy. We hope the boy will be informed of the circumstances, and never use tobacco himself.

EDITORIAL.

Thou therefore endure hardness, as a good soldier of Jesus Christ.—II. Tim. 2:3.

GLEANINGS' NEW DRESS.

For fear you might not have noticed it otherwise, we call attention to our brand-new type and our "bigger" and plainer letters. How do you like it?

PROFANITY.

Are any of the readers of Gleanings railroad men? If so, do you have swearing at your daily work? and won't you lend a hand in this battle for the right?

ERNEST'S RETURN.

Ernest drops in upon us just as we go to press, Sept. 1, and his father is very glad to see him, and quite willing to turn over to him his share of the editorial burdens.

THE HAVERLAND STRAWBERRY.

It has turned out somewhat as I expected. The tremendous demand for the Haverland plants has run almost every plant-grower into a corner. Our own stock is just exhausted, but we have found a place away off in New Jersey where we are told they can be bought. Before using them to fill orders, however, we shall set them in our plant-beds and wait until they have made good new roots, so your Haverlands may be delayed a couple of weeks. All the others will go as usual by the first mail. By the way, if any of the readers of Gleanings have any of the Haverlands for sale, will they please tell us how many they can furnish and at what price?

ADVERTISING THAT DID NOT PAY.

Just two more report that their advertisement did not bring them a customer. One is H. L. Fisher, of Milford, Ind., who advertised three-frame nuclei for $2.25 each, in May and June. He paid us $3.50 for the advertisement; but as it brought him no customer we return him the money. The other was T. L. Thomson, of Blairsville, Pa. He advertised bees at $4.00 per colony. As he made no sales we returned his $1.20. There is another fact that begins to come out here, friends; and that is, that a new comer in the advertising field is not as likely to receive orders as somebody with whom the people have become somewhat acquainted; therefore there is an advantage, to a certain extent, in getting people familiar with your name and address.

THE STRAWBERRY, AND ITS ADAPTIBILITY FOR INTERESTING INVALIDS, AND KEEPING THEM IN THE OPEN AIR.

I do not know of any other plant that grows that one can work with, propagate, and see grow almost every month, when the ground is not frozen, like the strawberry. As cold weather comes on, confine your operations to a piece of ground protected by hills or buildings, or both; and if you still wish to have them make runners and start plants, cover your bed, or a portion of it, with sash, when the frost is severe. Whenever the weather moderates so as to enable you to move the sash safely, do so; and whenever it rains, the sash are better off than on. By taking pains you can see them thrive almost all the year round, and you will have your reward in getting fruit a month earlier than those not protected. Of course, by the aid of artificial heat you can make them bear fruit in the winter time; but this is a more difficult operation.

QUEENLESS COLONIES IN SEPTEMBER.

This month and the next are the ones during which the average novice gets frightened because he can not find eggs or brood in the hive. In many localities the queens become so small and insignificant after they stop laying, that they are difficult to find; therefore the beginner sometimes even orders queens when every thing is all right and no queens are needed at all. Where honey is coming from fall pasturage, of course queens keep right on laying; and if you want your bees to raise brood this month, you can easily start them by daily feeding in small quantities. If the colonies are already populous, and have plenty of stores to winter them over, I do not believe it will pay to feed. If feeding is to be done, however, and no honey is coming in, I would do all the feeding during this present month, so that it may be well ripened and sealed up before cold weather comes on.

A VISIT FROM THE EDITOR OF THE AMERICAN BEE JOURNAL.

Last Saturday morning, Aug. 23, while dictating matter for Gleanings, I was agreeably surprised to see the genial face of our co-worker, Mr. T. G. Newman, editor of the *American Bee Journal*. He remained with us only a few hours, but they were very pleasant hours, I assure you. We felt sorry to have our friend see so much disorder all about us, consequent upon the new railroad and the new building, but I presume he knows how to make allowances. It was a privilege to us all to have him occupy the time and take charge of our noon meeting; and, by the way, every time I think of it, it gives me a new thrill of joy when I think what a grand thing it is to have such pleasant and brotherly relations between the editors of at least two of our prominent bee-journals. By the way, why *shouldn't* editors visit each other, compare notes, and find out how and by what means they may *assist* each other? Just contrast for a moment the effect it would have on our nation to see such a feeling among the editors of our land, especially editors who conduct what might be called rival journals, and in fields perhaps already overworked. The Bible says, "Give, and it shall be given unto you;" but Satan whispers, "You want to be constantly on the lookout lest somebody overstep a little

on your domain;" and then he urges, "An eye for an eye, and a tooth for a tooth." O dear friends, shall we not hold fast to the teachings of the Bible? I hope every member of our establishment will remember that, inasmuch as friend Newman's voice has (at least *once*) been heard in prayer at our noonday service, his name, and that of the journal he represents, may for all time to come be held by us all in reverence and respect long after the present editors have been gathered to their eternal home.

SPECIAL NOTICES.

TERRY'S BOOK ON STRAWBERRIES.

We expect this to be ready to mail within three or four days. I think it will pay every strawberry-grower who has a bed of fifty plants or more. The price is 35 cts.; by mail, 40.

GRAND RAPIDS LETTUCE SEED WANTED.

If any of our readers have any, please tell us what you have and what you will take for it, or send what you have by mail, and we will pay you a good price for it.

COIN-SILVER WATCHES.

We have in stock three solid coin-silver watches, stem wind and set, open face, 14 size, with seven jewels, Waltham movement. We offer them postpaid and registered for $10.00 each. They have a plain 2-oz. case, and we warrant for 30 days.

TIN-CASED GLASSED OIL-CANS.

We are able to offer a tin-cased glass oil-can, to hold a gallon, for 25c each, $2.80 per box of 1 dozen. These have a spout with stopper, a 1-inch tin screw cap for filling, and a bale to carry by. They would make an excellent article to sell extracted honey in; for when empty it can be put to good use.

MISMATED QUEENS.

We have a few mismated queens in our apiary that we should like to dispose of during the next two weeks. They are good thrifty queens, reared from pure Italian mothers, but their progeny does not show the full markings of Italians, and hence they have to go for hybrids. Price 35c each, or 3 for $1.00, while they last.

EXTRA WHITE COMB HONEY.

We have secured about two tons of very fine white comb honey from Matthias Schneider, Jr., of Iosco County, Mich. About half of it is in 12-lb., the rest is in 24-lb. glassed cases. The net weight is about 11 and 22 lbs. each. We offer this at the following prices: Less than ten 12-lb. or five 24-lb. cases, 18c per lb. From 10 to 50 of the 12-lb. and 5 to 25 24-lb., 17c per lb. Above this amount, 16 cents.

HENIS FRUIT-PRESS ADVANCED.

We regret to be obliged to withdraw the present low price on this very convenient and useful household utensil that has met with such favor. Since we first offered it for sale about a year and a half ago, we have sold nearly 10 gross. Recently a new firm has taken hold of it; and as it is patented, they, of course, control the price. Their first move is to advance the price to nearly double what it was. For the present the price will be 35c each; $3.50 per dozen, or $9.00 per box of 3 dozen.

SECOND-HAND TYPE FOR SALE.

Our readers will discover that this issue of GLEANINGS is in a new dress of type. Instead of setting part in nonpareil and part in brevier we have fallen in with the general custom, and use only one size, called minion, the articles being set solid, and the answers leaded. This leaves us with about 350 lbs. of second-hand brevier type in fairly good condition, which we offer for sale at 20c per lb., which is about half the price of new type. If you don't want so much, write, naming the amount you can use, and we will make a price. We would much prefer to sell all in one lot, and that is why we make the price so low.

ARIZONA HONEY.

In the two weeks that have elapsed since the carload of honey reached us from Arizona we have disposed of all the comb honey and nearly a third of the extracted. After writing the notice for last issue we found that there was in the car some 2d and 3d grades that we can offer a little lower. We find, also, that nearly half the car is mesquite, which is lighter colored than the alfalfa, and a better flavor, if possible. We will mail samples of any kind or grade free on application. The price is 10c per lb. for one to five 60-lb. cans; 9c per lb. for from 3 to 10 cases of 2 cans each. In lots of 10 cases (1200 lbs.) or more, 8c per lb. Second grade, ½ cent per lb. less; 3d grade, 1 cent per lb. less than 1st grade. These 2d and 3d grades are not far below the first; but if you hesitate about buying, send for a sample which we will mail free on application.

THE ILLUSTRATED HOME JOURNAL.

This excellent monthly home magazine is published by Thos. G. Newman & Son, the editors of the *American Bee Journal*. It is a 32-page monthly, fully illustrated on nearly every page, and brimful of good, clean, interesting reading. Every number, we notice, also contains a song with music. It is a journal that ought to be in every home; and to make it still easier for you to place it there, the publishers have made us a proposition whereby we can club it with GLEANINGS one year for only $1.35, and all new subscribers will receive the *Home Journal* for the rest of this year and all of 1891. Just think of it! If you subscribe *now* for GLEANINGS and the *Illustrated Home Journal*, sending $1.35, you will receive fifteen numbers of the journal for the extra 35 cents—only a little over 2 cents each. This is a magnificent offer that many should accept. We will club the *American Bee Journal* along with the two for $2.25.

KIND WORDS FROM OUR CUSTOMERS.

I received the 24 pumps all right from Canton, and they give satisfaction. JOHN A. SARVER.
Morton, Ill., Aug. 21.

PROMPTNESS IN SENDING QUEENS.

The dollar queen ordered about July 18th came in good condition, and two days sooner than I expected. I am highly pleased with her, and with your promptness. W. J. TAYLOR.
Palo, Linn Co., Iowa, July 24.

THE DAISY WHEELBARROW.

We received the wheelbarrow all right. It pleases the whole family very much. We have all taken a ride on it, even to Mrs. R., who enjoyed the wheelbarrow very much, but thought her horse a little frisky and unsteady. ARTHUR T. REED.
Oberlin, Ohio, July 29.

OUR METHOD OF SHIPPING STRAWBERRY-PLANTS.

The 200 Jessie and 50 Bubach plants are at hand, and set out. They could not come in a better shape. You certainly deserve every order sent you, if treated as mine was; all are living, and I am satisfied with your exertions to do as you would be done by. Thanks for the few extra ones. GEO. W. BALDWIN.
Forest City, Mo., Aug. 20.

PLEASED WITH OUR FOUNTAIN PEN.

I am just in receipt of the Bateman fountain pen, ordered of you, and I herewith wish to express my satisfaction in using it. Fountain pens have been very extensively advertised in the papers for some years past, but I thought I could not risk to invest in one, until I saw the one recommended by A. I. Root. Then I was sure I should find one just as represented, and I ordered one forthwith. I can say that I am well pleased with it so far, and have no doubt but that it will continue to do good service for a long time. SAMUEL E. MILLER.
Bluffton, Mo., July 26.

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CONVENTION NOTICES.

The Southwestern Wisconsin Bee-keepers' Affiliated Association will meet Oct. 8, 1890, in Platteville, Wis., at the residence of E. France, to commence punctually at 10 A.M., sharp. There will be a large turnout of prominent bee-keepers of the State. A question-box, free to all, in which any subject you wish discussed can be presented and answered. Let every one be on hand and bring in his report for 1890, starting at spring count, or May 1. There will be blanks sent to each member for this purpose, in due time, by the secretary.

The following is the programme:

Implements in Apiary. F. L. Snyder, Orion, Wisconsin.
Artificial Swarming. E. France, Platteville.
Natural Swarming, G. O. Miller, Boscobel.
Comb Foundation, Benj. E. Rice, Boscobel.
Best Way for Hives to Face, B. Bartholomew, Boscobel.
Races of Bees, N. E. France, Platteville.
Wintering, In doors or Out, Charles Zelmer, Wauzeka.
Feeding Bees, M. M. Rice, Boscobel.
Location of Apiary, Court Main, Boscobel.
Size of Hives, W. H. Prideaux, Bloomington.
Queen-raising, Introducing, etc., A. Arms, Hurlbut's Corn's.
Marketing Honey, H. Evins, Wauzeka.
Help by our Society, National, State, and Local, N. E. France.
Honey plants, J. W. Van Allen, Haney, Wis.
How to Extract our Beeswax, Edwin Pike, Boscobel.
Robbing—Cause and Cure, A. E. Collie, Mount Hope.

N. B. The date of the above convention has been changed from the 1st to the 8th.

Boscobel, Wis. BENJ. E. RICE, Sec'y.

The Capital City Bee-keepers' Association will meet at 10 A.M., Sept. 26, 1890, in the supervisor's room, at Springfield, Ill. All are invited, especially the ladies. C. E. YOCOM, Sec'y.
Sherman, Ill.

The next convention of the Turkey Hill Bee-keepers' Association will take place at the Turkey Hill Grange Hall, near Wilderman's Station, three miles southeast of Belleville, Ill., Oct. 30, 1890. All interested are invited. S. BRAEUTIGAM, Pres.
Belleville, Ill., Sept. 9.

SHIPPING-CRATES.

We are making them cheap and neat.
Write for prices.

C. B. LEWIS & CO.,
WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

Bee-Keepers' Supplies.

WHY ✣ SEND ✣ LONG ✣ DISTANCES?

SEND NAME ON POSTAL CARD FOR MY NEW PRICE LIST TO

C. P. BISH, Grove City, Mercer Co., Pennsyl'a.

Formerly of St. Joe Sta., Butler Co., Pa.
ESTABLISHED IN 1884. 9tfdb
Please mention this paper.

Send 25c for my book of discovery and invention,

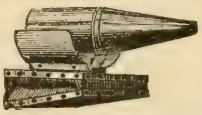
THE QUEEN RESTRICTOR.

Address **C. W. DAYTON,**
18d **Clinton, Rock Co., Wis.**

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.—Country Store, postoffice and dwelling-house in same building; also 50 Colonies Bees. 17-18d Address S. HEATH, Tidal, Armstrong Co., Pa.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid		$2.00
Conqueror "	3 "	"		1.75
Large "	2½ "	"		1.50
Extra (wide shield)	2 "	"		1.25
Plain (narrow ")	2 "	"		1 00
Little Wonder,	1¾ "	"		65
Uncapping Knife				1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Neb.; G. L. Tinker, New Philadelphia, O., E. Kretchmer, Red Oak, Ia.; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON.**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

MONMOUTH, JESSIE, and MAY KING strawberry-plants; only 50c per 100, or $4.00 per thousand. S. F. REED, N. Dorchester, N. H. 18d

Wants or Exchange Department.

WANTED.—To exchange pure bred poultry for white extracted honey. Se ect breed you want from my circular (sent free) and mail sample of honey. S. P. YODER, East Lewistown, O. 17tfdb.

WANTED.—Golden Queen raspberry roots in exchange for other nursery stock. M. ISBELL, 17-18d Norwich, Chenango Co., N. Y.

WANTED.—I will exchange sewing-machines, new, and fruit-trees, for honey. Address 15-24db E. PETERMAN, Waldo, Wis.

WANTED.—To exchange Italian bees in Portico L. hives for hives in flat or one-piece sections. A. W. GARDNER, Centerville, St. Joseph Co., Mich. 16-17-18d

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—Honey in exchange for supplies or cash; must be cheap. F. C. ERKEL, LeSueur, Minn. 18-19d

WANTED.—To exchange full colonies of bees for apiarian supplies of every description, or for automatic section-machine. W. H. PUTNAM, 18tfdb Supply-dealer, River Falls, Wis.

WANTED.—To exchange National Safety Bicycle, ball bearing, cost $75.00 when new; used one season; will take white-clover honey, extracted, or offers. E. C. ELVER, Mt. Horeb, Wis. 18-19d

WANTED.—To exchange all kinds of nursery stock, peaches, pears, grapevines, raspberries, strawberries, etc., for foundation, beeswax, empty combs, or offers. Address T. G. ASHMEAD, Williamson, N. Y.

WANTED.—To exchange Ply. Rock fowls, fine stock, for a lot of empty L. combs for extracting, or offers. T. G. ASHMEAD, Williamson, N. Y. 18tfdb

WANTED.—To exchange 2-seated cutter, new, for empty L. combs, fdn., sections, hives, or offers. 18d JOHN BURR, Braceville, Ill.

WANTED.—To exchange bee-hives for bees, will guarantee satisfactory hive. 18tfdb LOWRY JOHNSON, M'F'R, Masontown, Fay. Co., Pa.

WANTED.—To exchange a Given foundation press for white extracted honey. 18tfdb J. M. ROOD, Dryden, Lapeer Co., Mich.

WANTED.—To exchange a single harness, or light double road harness, sleighs, one a light one, or two seated buggy wagon, for a small planer, swing saw, and a power press for punching iron. GEO. E. KNOX, Ballston Spa, N. Y.

SITUATION offered to a competent wood worker who thoroughly understands the mnaufacture of bee-hives, one-pound sections, etc. Address with references, W. H. PUTNAM, River Falls, Wis. 18tfdb

WANTED.—To exchange one steam honey-evaporator, and one 240-egg incubator, for good, sound double work harness (medium weight), side saddle, single harness, one-piece sections, S. hives in flat, or offers. S. B. SEAMAN, Harford Mills, Cortland Co., N. Y.

WANTED.—To exchange a $150 Silver Tongue organ, for 600 lbs. of white-clover honey. Write for particulars. C. K. READING, Davenport, Iowa.

WANTED.—Lessons in Shorthand by mail in exchange for honey or bees. Address D. H. KENT, 118 East Third St., St. Paul, Minn.

FOR SALE OR EXCHANGE.

House and lot, in Lima, Livingston Co., N. Y., for full colonies of bees, Italians *preferred*. One of the oldest and best seminaries in the State located there. For full particulars, address 18d J. S. VANDENBERGH, Canandaigua, Ont. Co., N. Y.

CHOICE HONEY FOR SALE CHEAP

ADDRESS

JAMES HEDDON, DOWAGIAC, MICH.

ARE YOU GOING

—TO ATTEND THE—

MICHIGAN STATE FAIR?

If so, please call at **"Bees & Honey Hall,"** and examine the "Golden Italian Bees," on exhibition by **JACOB T. TIMPE,** of **Grand Ledge, Mich.** For prices on Queens see Oct. 1st. GLEANINGS. Don't forget to call while at the **FAIR.** I shall also have other races on exhibition. Don ot fail to see them.

50 COLONIES OF BEES FOR SALE,

In ten-frame Langstroth hives, $3 per colony. Have plenty of honey to winter on. Also a lot of bee-supplies. JOHN CROMBIE, Columbus, Wis.

FOR SALE.

Good farm, ¼ section, on ten years' time, 8% interest. Small payment of principal, one or two hundred dollars, and the 8% in advance yearly, or semi-annually. Has fine grove; 5 acres, 100 bearing apple-trees; small fruits; nice evergreens in yard; good well; house 14x26, with L 8x16; barn 16x32; board-roof granary 16x16; all fenced; 3 and 4 fields, all in cultivation; no waste land; 3 miles to P. O.; 1 mile to school; 3 miles to 5 churches. This is fine farm; price $4000. Also 80 acres finely improved; all kinds of fruit for this latitude; for sale on as good terms; 80 rods to school; 1¼ miles to M. E. church; good locality; all American settlers; also good stock; horses, cattle, hogs, and 100 col's of bees in Simplicity hives. A fine chance for some one wanting to locate in Neb. Reason for selling: We wish to go to the Pacific coast. For further information, call on or address R. R. RYAN, Bradshaw, Neb.

☞In responding to this advertisement mention GLEANINGS.

Black and Hybrid Queens For Sale.

About 12 choice hybrid queens for sale, at 25c each, or 5 for $1.00. GEO. H. DENMAN, Pittsford, Hillsdale Co., Mich.

A few Carniolan queens bred from imported mothers and mated to Italian drones and *vice versa*, for sale at 25c; also 2 blacks at 15c. C. BROWN, Box 61, Dayton, O.

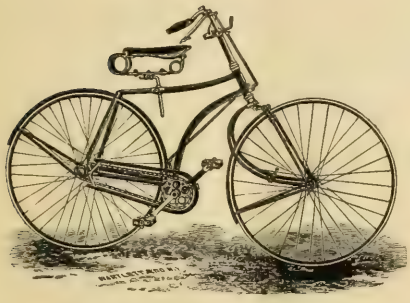
I have a few dark three-banded queens for sale, at 60 cents each; two for $1.00. First come first served. GEORGE J. HALL, Rumney, Grafton Co., N. H.

I will sell a few more mismated Italian queens at 25 cents each. C. G. FENN, Washington Litchfield Co., Conn.

Mismated Italian queens, 20 cts. F. C. MORROW, Wallaceburg, Ark.

I have 30 nice hybrid and 35 young black queens for sale. Send me 50c and get one of them. 16-17-18d A. D. ELLINGWOOD, Berlin Falls, N. Y.

VICTOR BICYCLES



Will carry you up hill easier and down hill faster than any others you ever mounted.

ALL INTERCHANGEABLE.
ALL HIGH GRADE.
ALL RIGHT.

Send for Catalogue.

OVERMAN WHEEL CO., Makers, Chicopee Falls, Mass.

☞In responding to this advertisement mention GLEANINGS.

EUREKA FRAME MACHINE.

Something every bee-keeper should have. For price and particulars address

24-23db **F. W. LAMM, Box 106, Somerville, Butler Co., O.**

Please mention this paper. 24-23db

BEES **SEND** for a free sample copy of the **BEE JOURNAL**—16-page Weekly at **$1** a year—the oldest, largest, and cheapest Weekly bee-paper. Address

16tfdb **BEE JOURNAL, Chicago, Ill.**

Please mention GLEANINGS. 1tfdb

SPECIAL CROPS.

A magazine for advanced agriculturists; 25 cts. per year; sample 7 cts. Also, Black Minorcas, B. Leghorns, and S. Wyandottes; eggs of either, per setting, 75 cts.; 26 at one time, $1.00. 4-50d

C. M. GOODSPEED, Skaneateles, N. Y.

☞In responding to this advertisement mention GLEANINGS.

NOW is the time to set **STRAWBERRIES** for next year's fruiting. Write for fall price list of plants and Secrets of Success in Growing Small Fruits; sent free, on application to I. A. WOOLL,

16tfdb Elsie, Mich.

WILL SELL APIARY OF 33 COLONIES IN fine condition (good location). Also 40 acres of land one mile from lively town. Address all inquiries to BOX 98, White Cloud, Mich. 16-17-18d

NOW FOR A BARGAIN.

I will sell cheap my entire stock of good Italian bees, one honey-extractor, and all my bee-fixtures; and if sold soon will sell the honey also, as I wish to retire from the business. MRS. REBECCA KINNEY,

16 19db Bloomsburg, Col. Co., Pa.

☞In responding to this advertisement mention GLEANINGS.

FOR LIGHT AND DARK FERRETS,

and pure Poland-China Swine, address

N. A. KNAPP, Rochester, Lorain Co., O.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.

5tfdb **CHAS. DADANT & SON, Hamilton, Hancock Co., Illinois.**

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS CHEAP.

We will sell Italian queens at the following low prices: Tested, 85 cts.; one-half doz., $4.75; untested, 65 cts. each. Satisfaction guaranteed.

LEININGER BROS., Douglas, Putnam Co., Ohio.

"BANNER"

Years ago, when I began working with my brother, the editor of the *Review*, his apiary was called the "Banner Apiary." A large share of this apiary is still kept at the old place, where I manage it on shares. It is stocked with a fine strain of Italians, and I have been saving the best cells from the best colonies, when they swarmed, and having the queens hatched and fertilized in nuclei. These queens I offer at 75 cts. each, or three for $2 00. No black bees near here. Can fill orders promptly, and will guarantee safe arrival. Make money orders payable at Flint, Mich. Address

15tfdb **ELMER HUTCHINSON, Rogersville, Genesee Co., Mich.**

N. B.—Bees are now working on buckwheat, and swarming. I can still furnish queens reared by the swarming impulse. E. H.

☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**

6tfdb **Rock Falls, Illinois.**

Please mention this paper

FOLDING PAPER BOXES.

CRAWFORD'S SECTION CARTONS ARE THE BEST.

Send for free sample and price list, and find out the reason. A certain fact has come to our knowledge that is worth dollars to *you*. Send for it.

A. O. CRAWFORD, S. Weymouth, Mass.

12tfdb Please mention this paper.

500 Italian Queens For Sale. Tested, $1.10, three for $3.00. Untested, 70 cts. each; three for $2.00. Also bee-keepers' supplies, etc. 16-page circular free. 15tfdb

JNO. NEBEL & SON, High Hill, Mo.

GOLDEN ITALIANS.

Full colonies with tested queen, in A. I. Root's Portico hives, only $4.00. Barnes foot-power saw for hive-making, Victor scroll saw. Must be sold before Oct. 20, '90. **B. F. STOVER, Roscoe, O.**

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—Honey of all kinds is scarce. There is almost no comb honey in our city. But, what is of greater importance, is, that we have hardly enough extracted honey to supply our manufacturing custom. The "hold on" doctrine is bad policy, as we are sure to be overstocked again about Christmas-time. Such has been the case generally, and is likely to repeat itself, in a great country like ours. Choice comb honey would bring 15@16 in the jobbing way. Extracted honey brings 5@8 on arrival.

Beeswax.—There is a good demand for beeswax, at 24@26 on arrival, for good to choice yellow.

Sept. 8. CHAS. F. MUTH, Cincinnati, Ohio.

ALBANY.—*Honey.*—We have received up to date, 251 cases of comb and 39 half-bbls. of extracted honey; nearly all of this is buckwheat of fine quality. Fancy clover seems to be very scarce. Trade opens up briskly at following prices: Clover, 16@18c per lb.; mixed, 13@14; buckwheat, 11@13. Extracted, 7@9.

CHAS. MCCULLOCH & CO.,
Sept. 12. 339 Broadway, Albany, N. Y.

NEW YORK.—*Honey.*—Honey in the comb is very scarce so far, and new arrivals are sold as fast as they come in. Fancy white, 1 lb., 16½@18c; fair, 14@16c; dark and mixed, 12@14. We have received no 2-lb. combs as yet; these would bring about 2 cents less, according to grade. Extracted Florida honey, 7¾@8c; Common Southern, 65c per gal.; California, 6½@7c; Basswood and white clover, 7½@8c. Demand is very good.—*Beeswax*, 27@28; stock small.

Sept. 11. F. G. STROHMEYER & CO., New York City.

CHICAGO.—*Honey.*—Comb is now held firmly, and sales are being made at 17@18c for best grades of white. Up to this time there has not been more than the trade has taken from day to day, and as the weather is now cool an active trade will ensue. Extracted honey also sells well at 7@8c for barrels and cans. Mail orders are filled at above prices f. o. b., Chicago. R. A. BURNETT,
Sept. 10. 161 So. Water St., Chicago, Ill.

ST. LOUIS.—*Honey.*—The demand is excellent for both comb and extracted, while the market is well supplied with the latter, the former is scarce. We quote: Choice white clover, comb, 13@14c; inferior, 12@13. Extracted and strained, in barrels, 5@6; cans, 7½@8½. *Beeswax*, prime, 27.

D. G. TUTT GRO. CO.,
Sept. 11. St. Louis, Mo.

KANSAS CITY. *Honey* —The demand for comb honey continues good; supply light. We quote: 1-lb., white comb, 15@16; dark, 13@14; 2-lb., white, 13@14; dark, 12@13. Extracted, white, 7c; dark, 5@6. *Beeswax*, 23@25. CLEMONS, MASON & CO.,
Sept. 5. Kansas City, Mo.

NEW YORK.—*Honey.*—Honey is in excellent demand and finds quick sale at the following prices: Fancy white, 1 lb., 16@18; 2 lb., 14@15; off grades, 1 lb., 13@15; 2 lbs., 12@13; buckwheat, 1 lb., 11@12; 2 lbs., 10@11. Extracted, basswood and clover, 8c; buckwheat, 6c; California, 6¾@7.

Sept. 12. HILDRETH BROS. & SEGELKEN, 28 & 30 West Broadway, New York.

KANSAS CITY.—*Honey.*—Demand for comb is larger than receipts. We quote: 1-lb. white comb, 16c; 2 lb., 14c; 1-lb. dark comb, 13; 2-lb. dark comb, 12. Extracted, white, 7; dark, 5@6. No beeswax on the market HAMBLIN & BEARSS,
Sept. 11. 514 Walnut St., Kansas City, Mo.

BOSTON.—*Honey* —Honey is selling fairly well, from 16@18c for white clover 1-lb. comb. Extracted, 7½@9. No beeswax on hand. BLAKE & RIPLEY,
Sept. 11. Boston, Mass.

DETROIT.—*Honey.*—Comb honey is selling at 14@16c; very little in the market. Extracted, 7@8c. *Beeswax*, 26c. M. H. HUNT.
Bell Branch, Mich., Sept. 12.

FOR SALE.—1000 lbs. white-clover honey, in 1-lb. sections. Will pack in 25-lb. cases, crated to suit purchaser, and to go by freight. I want 18c for it here. J. M. AKER, Smithville, Clay Co., Mo.

FOR SALE.—100 lbs. of white-clover honey, at 15c per lb., on board cars. LUCY NOYES, Geneva, N. Y.

WANTED.—A barrel of white-clover honey.
Address EDGAR BRIGGS,
Manchester Bridge, Dutchess Co., N. Y.

FOR SALE.—2000 pounds of very nice white-clover honey, in 60-lb. cans. H. VAN VRANKEN,
Union City, Branch Co., Mich.

FOR SALE.—5000 lbs. well-ripened extracted honey, in 60-lb. cans. C. H. STORDOCK, Durand, Ill. 18-23db

FOR SALE.—1200 lbs. extracted clover honey, in 60-lb. cans, at 10 cts. here.
R. H. BAILEY, Box 81, Ausable Forks, N. Y.

FOR SALE.—800 lbs. extracted clover honey at 9c.
M. ISBELL, Norwich, Chenango Co., N. Y.

WANTED.—Honey, both comb and extracted. Give kind, quality, and price. Address
H. G. CAMP, Winona, Ohio.

WANTED.—To know who will furnish me about 700 lbs. buckwheat honey, f. o. b. State price and size of packages. Address G. N. CORNELL,
91 West Main St., Battle Creek, Mich.

To BEE-KEEPERS!

IN ADDITION to our New England **Honey Trade** we have leased a Store in New York City (in the best possible location to catch the Grocery Trade), and propose handling

COMB AND EXTRACTED HONEY

there. As we have been practical Bee-Keepers and have had some 12 years' experience in the Honey Trade (during which time we have handled MORE HONEY than any House in New England), we feel justified in saying that we understand the Honey Trade, and think we can handle your **Surplus Honey** to the very best advantage.

We shall endeavor to make Quick Sales at the **very highest prices,** and by making prompt returns we hope to merit your patronage. Advances made when requested. Stencils furnished — also printed instructions for Packing and Shipping, giving valuable information gained by our experience in Shipping Honey by the Ton and in Carload lots.

Correspondence, Visits, and Consignments Solicited. Address

F. I. SAGE & SON,

183 Reade St., - - NEW YORK, N. Y.

☞ No Consignments received at Wethersfield, Conn.

REFERENCES.—Bradstreet's and Dunn & Co.'s Commercial Reports, and the numerous Bee-keepers whose Honey we have handled the past 12 years.

18-23db Please mention this paper.

NEW FACTORY.

We will soon be in our new factory, which will be the largest and most complete in the world. We shall make the best of goods at lowest prices. We are ready for contracts for next season's supplies. Write us.

C. B. LEWIS & CO.,

17-tfdb **WATERTOWN, WIS.**

☞ In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS, 50 CTS Tested, young, and producing nice banded workers.
F. C. MORROW, Wallaceburg, Ark.

Vol. XVIII. **SEPT. 15, 1890.** **No. 18.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

TOO CLOSE SPACING, ETC.

GETTING WAX OUT OF EXTRACTORS.

On page 589, friend Root, you say you don't bother to re-melt the wax to get it out of the extractor-pan. Then your pan must be different from mine. Mine has a screw-cap that would not allow the cake of wax to come out. I wish it weren't there. But the wax I have been getting would have to be re-melted any way, because there is so much bee-glue mixed all through it. When the mass that is put in to be melted is half bee-glue, a good share of this latter runs through the strainer, and I don't know any way to prevent it; for when hot enough it is just like molasses. Fortunately it takes more heat to melt bee-glue than to melt wax. So when the pan is full as it can conveniently be, I set it in the oven of the cook-stove till the wax is melted, then pour it off, leaving the bee-glue to be scraped out of the pan.

FRED C. SMITH'S TOP-BARS—SEE PAGE 602.

They are $\frac{7}{8}$ wide, with $\frac{5}{16}$ between them. That makes $1\frac{3}{16}$ from center to center. Isn't there danger of running close spacing to extremes? The harm done by it may not always be seen. In cool weather the spacing may be so close that a sufficient mass of bees can not get between the combs to get up the requisite heat. This might continue for years, and not be noticed. But there is one thing that can be noticed, if one takes the pains to look. I have had some closer spacing within the last two years than I have ever had before. Now and then I have found a comb, on one side of which there was no brood throughout a large part of it. It was worker comb, black with age, the cells empty, and every thing appeared right about it, only the queen laid no eggs in it. I think the only trouble was that there was not room enough between the combs. The spacing of top-bars was no closer than for other combs —why should there be any difference? Well, the spacing of the top-bars doesn't tell the whole story. Suppose you examine one of your hives with common hanging frames. First see that the spacing of the top-bars is perfect, each space just exactly like the others. Now tip up the hive and look at the bottom-bars. Don't you see how irregular the spacing is? Some spaces are two or three times as large as others. But there is another reason for irregularity. Even with wired frames, the septum of the comb is not always exactly in the center. Suppose one comb has the septum $\frac{1}{8}$ of an inch to the right of the center, and the adjoining comb has its septum $\frac{1}{8}$ to the left of the center. That may make the distance between the comb surfaces $\frac{1}{4}$ of an inch less than the average. In friend Smith's case, that would make the combs less than one inch from center to center. The only thing, then, for the bees to do is to leave one surface of comb unused, cutting down the cells as much as may be necessary. Of course, I have taken an extreme case, but I think it shows that we would better space too wide than too close.

QUEEN-EXCLUDING ZINC FOR NON-SWARMING EXTRACTING.

On page 630, F. H. Cyrenius says: "For non-swarming extracting, when the hive is full of brood, and honey begins to come, place a set of empty combs or foundation below with the queen, the brood above, and the zinc board between, and they will roll in the honey if it is to be had, and will fill the upper story as the brood hatches, and the outside combs below." I tried several precisely as directed above. In each case the queen stopped laying. In all but one case I put a frame of brood below after waiting two or three days, and then the queen went to laying. In the remaining case the queen was put below the excluder May 24, and left till June 3, when I found only eggs below, showing that the queen stopped laying at least a week. Now, I'm not sure that it is always bad to have the queen stop laying: I only want

to call attention to the fact, that, if you want to make sure of her laying right on, you must give her one frame of brood as encouragement. Possibly bees do not always act as mine did, but I suspect they generally do.

GETTING BEES TO EMPTY SECTIONS.

On page 638, E. D. Howell asks how to get the bees to carry the honey from partly filled sections to the body of the hive when they need it for winter stores. If they need it for winter stores they will carry it down if the sections are left on the hive; but sometimes they make very slow work of it. To hasten matters, if your hives admit of it put the super of sections under the hive. If the work doesn't then go fast enough, put the super of sections on the stand, on top of it an empty super, and on top of this the hive. Look out for robbing. Leave no entrance at the bottom of the super, and, if necessary, contract the entrance in some way. If robbers are troublesome, make the change in the evening. If you merely want the sections cleaned, without caring what colonies get the honey, put several supers in a pile away from the hives, covering up securely, *leaving room for only one bee to enter at a time.*

Marengo, Ill. C. C. MILLER.

It must be, friend M., that our pan is different from yours. When we first began making solar extractors we made the sides perpendicular; but friend Green wrote us that we ought to make them sloping, so the blocks of wax would drop out when the pan was inverted, and we have since done so. It is possible that you have one of our first extractors; and in that case the wax might not come out without melting. As the wax comes from our solar extractors, it is a nice clear yellow, and would be entirely fit for market were it not for its shape. But, about that propolis, it must be that you have more than we.—Yes, I think there is danger of carrying close spacing too far; but instead of having frames further apart, why not use fixed distances, and then the bottoms of the frames will be spaced as accurately as the tops? It would have done you good to see some nice combs at Elwood's and other places where they use fixed distances. E. R.

BI-SULPHIDE OF CARBON FOR WAX-LARVÆ.

USEFUL ITEMS FROM PROF. COOK.

Can you inform me, through GLEANINGS, as to the advisability of using bi-sulphide of carbon for destroying the wax-worms in empty combs? Is it safe to use it for the same purpose with comb honey? Sulphur I dislike to use with comb honey, as it is so easy to use too much and injure the color and flavor.

ARTHUR C. MILLER.

Providence, R. I., Aug. 27.

Prof. Cook replies:

In reply to Arthur C. Miller, Providence, R. I., regarding the use of bi-sulphide of carbon to destroy the bee-moth larvæ, I can say unhesitatingly that it will kill them, and, unless turned on the comb, could harm nothing. It might dissolve the combs if turned on them, but would not harm them otherwise. If the combs are put into a tight box or barrel, the liquid turned in, it could be turned against the side of the box or barrel, so as not to touch the combs, and the box at once covered tightly by the use of oil cloth or other close fabric, the insects will speedily succumb. In case of comb honey it would be entirely safe if used in the same way. I do not suppose it would do any harm to turn it on to the combs. I will at once try it and report. The only danger in the use of this liquid is its explosive character. Of course, safety demands caution that no fire be brought near. The vapor is very inflammable, and, when mixed with the air, quite explosive, so we must keep all fire, like lighted matches, cigars, etc., away till the vapors have escaped. The odor is so marked that it is easy to tell when it has all escaped. This volatilizes so entirely that we can turn it on flour and no harm will follow. It passes wholly off. Bought at wholesale it is very cheap, and I see no reason why it may not be used very satisfactorily by the bee-keeper.

THE TEXAS COW-KILLER.

W. O. Victor, Wharton, Tex., sends a cow-killer. This is illustrated in my Bee-Keepers' Guide, and has been frequently described in GLEANINGS. It looks like an ant, except it is hairy, and is a rich carmine red, bounded with black. It is wingless, though a female, hence the generic name, *Mutilla*. It has a very powerful sting, as Mr. V. says he knows from experience. Will he tell us how its sting compares with that of the bee? I suppose it is much more painful. The insect is a fine one, though badly crushed in the mail. If put in a box or hollow stick with cotton it would have come in good shape. It is not found north.

THE GRAPE SPHINX AND ITS PARASITE.

Mrs. J. R. Beatty, Massillon, O., requests me to explain the relation between a large green caterpillar found on "ivy"—doubtless Virginia creeper—that grows on her porch, and several white egg-shaped masses which stand side by side on its back. These large, fine, green larvæ develop into a handsome moth, the grape sphinx. This so-called worm resembles in form and color the "tomato sphinx" larva, with which all are familiar. This larva is lighter green; the caudal horn is green instead of black; the spots marking the spiracles or breathing-mouths along the side of the body are much more obscure; and instead of several oblique yellowish stripes along the sides there is a nearly white stripe. These larvæ are very common this year, both on the ampelopsis—Virginia creeper—and also on the grape. I think Bertie has had nearly twenty of these in a breeding-cage on our porch during the past few weeks. Indeed, did not nature lay a heavy hand on these larvæ they would make sorry work with the plants which they infest.

Now to answer Mrs. B.'s question regarding the egg-shaped bodies on the back of this sphinx caterpillar: These are the cocoons of minute braconid flies — *Apanteles congregatus*, Say. These little flies lay their eggs in the sphinx larvæ. The minute parasites which hatch from these eggs feast on the caterpilar as it feasts on the grape or ampelopsis leaves. With so many little mouths feeding on its vitals, who can doubt but this larva is a believer in "internal improvement"? The braconid larvæ kill the sphinx larvæ, save our vines for us, and come forth to spin their cocoons on the back of their victim. Thus he bears about on his back his own destroyers, and the parents of other parasites that will do a like good work in the future.

When the box arrived, the little flies had come forth from the cocoons, much as a queen-bee comes from the cell. It is to be hoped that Mrs. B. and the children of many bee-keepers will put these larvæ in glass cans with cloth tied on for a cover. Feed them grape leaves, and so rear the parasites or the beautiful moths. The moths will not come forth from the pupa

till next summer. Bertie expects to rear several moths, as he thinks he has several larvæ that are not parasitized. A. J. COOK.

Agricultural College, Mich.

A MINNESOTA APIARY.

BEES AND GARDENING.

I send you a photo of our Dovetailed hive apiary. Although the hives are not all dovetailed, they will be another season. There are 56 colonies in all—30 in Dovetailed hives. The artist took the picture during our swarming season. You will see my swarming conveniences, from a barrel of water to Manum's device. Your humble servant sits in his old army-chair at the table, in the act of putting foundation into sections. His better half is at his right, and their family of five to the left, near the hammock and swing. Our help (brother and sister) are in front of the house. There are two rows of raspberry-bushes, and some rows of potatoes in the foreground, not shown. The former, when grown, will make a nice windbreak for the apiary, which is located in a grove on the edge of the prairie. At the right is my main garden, extending down to a small lake. At the rear of the house is a belt of timber more than a mile in width, bordering one of the largest and most beautiful lakes in the county, called Green Lake, from the color of its waters. This section of Minnesota is called the "Park Region," as it is interspersed with lakes, groves, and prairie. Probably no finer section of farming land is in the Northwest. Our soil is a rich gravel loam, with subsoil of clay. We can cultivate our gardens after heavy rains.

A DOVETAILED HIVE-APIARY.

Our garden (for 12 years adjoining the bee-yard) has been cultivated by horses on two sides of the apiary since its location, and they have never been stung. Of course, our bees (hybrids and blacks) are handled with care, and honey is never left around to start robbing. We should all feel it a great hardship to be deprived of our bees, and we should as soon think of being without milk as honey. I was first led into keeping bees through failing health. It has been a pleasant occupation for mind and body, and has paid better for the amount of capital invested than any other investment on the farm. I am following diversified farming—raising horses, cattle, growing grain, and a small dairy. I adopted the Dovetailed hive on account of its small size, strong and close-fitting joints, just adapted to this cold climate. If the hive were any larger I could not have handled it without loss.

I have a very fine bee-escape in my cellar, with screen windows. The filled supers are taken from hive to cellar near a window. The bees all leave the same night. The wax and propolis are so hard in the morning that you can scarcely take out section-holders and sections. The honey is not allowed to remain in the cellar any length of time, but is taken to a warm room to be more thoroughly ripened. If the editor of GLEANINGS, or any of his assistants (they would all be welcomed) should visit us another fall, they will find a much larger house, better adapted to the wants of a growing family.

WIDE AND THICK TOP-BARS A SUCCESS IN THE DOVETAILED HIVE.

July 19th I took off the first case of honey from the Dovetailed hive with thick and wide top-bars. There was no sign of burr-combs between the top-bars of the frames or on the bottom of the super. The honey was taken from a strong colony of bees in the middle of a heavy flow of basswood. There was no sagging of the top-bars. Last year was my first experience with burr-combs and slatted honey-boards (having used previously a closed-top frame), and I hope it will be my last.

N. P. ASPINWALL.

Harrison, Minn., July 21, 1890.

JULY 15TH GLEANINGS.

ITEMS FROM EXPERIENCE. FROM AN A B C SCHOLAR.

Mr. Root:—The contents of No. 14 of GLEANINGS having been devoured with my usual keen appetite for good things, I am now ready to offer my little mite toward spreading another feast. If my offering is palatable, give it a place on the table; but if not, cast it aside. First, in behalf of the A B C class, I wish to say that we are thankful that our reverend friend Stringer is not the editor of GLEANINGS. From what he says about foolish questions, I fear many of us would fare but indifferently at his hands. Yet we heartily agree with all he has to say on the subject, and are doubly thankful that we have such patient instructors as we find in both the Roots. Much as I detest

the filthy, sinful habit of tobacco-using, I can not indorse Bro. Stenger's last sentence: "Tobacco does even *more* harm than the heavy drinks." The tobacco vice is money, and possibly health, wasted on filth and general nastiness, and is, in the writer's judgment, positively sinful. But alcoholism is reason dethroned, morals debauched, health destroyed, hope blasted, money wasted, and souls damned. Tobacco robs home of cleanliness, and gives to a wife foul lips to kiss, while drink robs home of happiness, and for kisses gives blows and dire distress.

COVERS FOR CHAFF HIVES.

I want to tell you how I have made some covers for chaff hives that suit me exactly—handsome, light, true, and tight. I found the comb, or two-piece cover, almost sure to warp, so that moths, robbers, etc., could readily crawl under. After considerable study I decided on the following: After the hive was furnished ready for cover I fitted and nailed strips on to the hive-roof so as to raise the upper story or surplus chamber one inch at the back, and three inches at the front, with sides sloping from three inches to one inch, thus giving two inches pitch for roof.

I made my roof of very narrow half-inch matched linn, by nailing same to ⅞-inch-square cleats, so that these cleats would fit neatly over the end-pieces, front and back, mentioned above. I also nailed similar cleats under the edges so as to fit down over sloping sides, thus forming a complete cap-cover. I leaded the matched joints, and painted both sides. I bored a hole in the three-inch piece under the front end of the cover, and tacked a wire net inside and outside for ventilator; and now I think I have a perfect cover.

KEENEY'S METHOD OF WIRING A SUCCESS.

I have tried Keeney's plan of wiring, with Ernest's suggestion of wire-nail hooks, and I regard it as just the thing. I filled some of these frames with strips of four-inch section foundation by turning the edge of the foundation over the comb-guide so as to cover the guides on both sides. These have been built out beautifully, and I think it would take considerable pounding to knock out the combs, and I feel sure the top-bars will never sag.

SKUNKS AND BEES.

Your answer to E. W. Easter, as to why the bees dwindle, is most probably correct; but had I asked you a similar question a few weeks ago, and had added the fact that they had a prolific queen, what would have been your answer? In fact, I have had quite a remarkable case of dwindling, which I fancy might have puzzled some of the veterans had they not, like myself, by accident discovered the cause. And now I want to say to the A B C class, and may be the veterans might do well to lend an ear, beware of *skunk* dwindling. These little varmints nearly skunked me out of one good strong colony, and seriously damaged several others; and had I not tumbled on to their depredations early in the game, I don't know what the result would have been.

I happened to use some coal ashes to level up a place for a hive; and shortly after, and while the ashes were still fresh, I discovered one morning after a rain, that the alighting-board was smeared over with wet ashes, and the ashes in front trampled down in a suspicious manner. Having gone carefully through my A B C, I at once recalled the few lines on skunks as among the enemies of bees. I kept watching for further evidence of their mischief, but saw nothing for several weeks, and had almost forgotten the matter. But while I was absent from home, Mrs. B. discovered one of our best colonies dwindling rapidly from day to day; and recalling what I had said of skunks, she set our 12-year-old boy to watch at night; and, sure enough, he discovered not *one* but *two* of the rascals at their mischief. He was afraid to tackle them, and went to a neighbor's for a gun, but when he came back they had gone, or at least he could not find them. Next night they put in an appearance, and he tackled one with a stick; but after giving it a beating it got a shot at him, and hit him in the eyes, blinding him so he could not see. Still he beat at it until his stick broke, and the rascal escaped. The bold little marauders returned the following night. I, having that day returned home, set poison for them. My son has seen one of them once since, but we have no further evidence of their rascality. Now, bear in mind there was absolutely no odor to betray their presence until my son struck one of them. May it not be possible that their mischief is much more common than has ever been suspected?

Wheelersburgh, O., Aug. 4. J. M. BROWN.

Friend B., it is no doubt true that tobacco does not do the harm directly that alcohol does; but it is the opinion of many of our best and wisest teachers and professors of colleges, ministers of the gospel, etc., that, indirectly, tobacco does more harm than alcohol. It paves the way for the stronger stimulants. An intemperate man always uses tobacco, and I feel sure that it is quite likely that, had he never used tobacco, he would never have had a craving for a stronger stimulant. Dr. Kellogg says that the young man who coolly and deliberately takes hold of a stimulant that he has no craving for, will, without question, have little scruple in gratifying himself in something that his lower nature *does* crave. If our boys can be kept from using tobacco, they can likely be kept from intemperance, licentiousness, and all these other low passions.

BEE-ESCAPES.

THE DIBBERN AND WRIGHT ESCAPES A SUCCESS.

Some two months ago I received your shipment of Dibbern horizontal bee-escapes, and prior to that I had made several after the pattern illustrated on page 280, GLEANINGS (W. W. Wright's). Both have given entire satisfaction in practical application on the Dovetailed hive. Usually from 10 to 25 bees can be found in the super after its removal. Once I met with an utter failure; but on examination I found the queen in the super with the bees. So far I have found the best results with an eight-cone Wright escape. I have tried them in various ways, and sometimes have taken off the super in three hours, and sometimes have left it on two days.

In practice I have had the best results by placing the escape over a super of empty sections, so that the bees are not forced down into the hive nor compelled to lose any time. The conditions under which these tests have been made are peculiar. There is here *no fluctuation* in the flow of nectar. Through a term of years I have found that I can depend on a moderate honey-flow every day for five months.

S. W. SHERFEY.

Mesilla, New Mexico, Sept. 8.

THE T SUPER.

DR. MILLER OVERCOMES SOME OF ITS OBJECTIONS.

I shall be rather surprised if, within a few years, I do not find something I like better than the T super. As yet, however, I have not seen it. In the meantime I am doing all I can to learn how to overcome the objections to it. I suspect that some who have tried it have not known how to use it properly. Certainly I have learned something in this direction since first using it. A very fair summing-up of the disadvantages of the T super may be found on page 69 of the latest edition of the A B C. They are given under three heads; and a fourth, until lately, would have been added by me. I will speak of it again. Under the first head, friend Root says: "Open-side sections, which of late (1889) are growing in favor, can not be used in it." If I remember rightly I have seen it stated that of late the call for open-side sections has not been large, and I have had the impression that they were rather growing out of favor. How is it now, friend Root? In any case, I think there are some who, like myself, have tried and rejected the open-side sections, and for such this first objection to the T super does not hold.

A B C gives objection 2: "As the upright of the T takes about $\frac{1}{16}$ of an inch, it leaves spaces between the rows of sections, which the bees are inclined to fill with propolis. . . . . One-piece sections have a tendency to be diamond-shaped; . . . . they come out of the super a little bit out of square." This is putting it very mildly. Instead of $\frac{1}{16}$, the upright of my T tins has $\frac{1}{8}$. The super is $17\frac{3}{8}$ long, inside measure, and four of the $4\frac{1}{4}$ sections measure 17 inches, leaving $\frac{3}{8}$ space for play. And the sections do play. They slouch around in all sorts of shapes, leaving spaces anywhere from nothing to $\frac{3}{8}$ of an inch for the bees to fill with glue. Often the side of a section for more than two-thirds of its length will be entirely covered with propolis, some of it a fourth of an inch thick. I am happy to say that I have entirely overcome this objection. In getting ready for the harvest of 1890, I ordered of A. I. Root separator stuff cut 12 inches by $\frac{1}{4}$, enough to have three pieces for each super. This, of course, meant stuff $\frac{1}{16}$ thick. When it came it was 12 by $\frac{1}{4}$, but the thickness varied, averaging about $\frac{1}{8}$ of an inch. I was taken aback. It would leave no play whatever to get in these three sticks, and it would be simply impossible to get them in. But in this, as in many another case, I found myself mistaken. Although it made a tight fit, there was no great trouble in getting them in. You understand that, after the supers were filled with sections, and the separators all in, these little sticks were pushed down across the supers in the spaces left between the rows of sections, so that four sections, $4\frac{1}{4}$ each, and three sticks each $\frac{1}{8}$ in thickness, just exactly filled the super.

I do not know of any new thing I have tried this year that has pleased me as much as these little sticks. Every section is held perfectly true and square, having no chance to be otherwise, unless so much out of square that one end of the section rises up, which it would do just as much in a Moore crate. The sides of the sections are, of course, entirely clean. Not a bee has a chance to get at them.

In using these little sticks I found another advantage not to be despised. Before I tried them I thought it would be harder to draw out a single section held in place by the sticks, and harder to put it back. To my surprise I found it somewhat easier to draw out, and a great deal easier to put in. There is less surface friction. In putting in a single section without the sticks, the section generally strikes on the upright of the T, and you can't push it to one side enough to slide it down. The two sticks make a play-space of $\frac{1}{4}$ inch all the way from the sticks to the T, allowing you to move the bottom of the section back and forth to strike the right spot.

I don't know by what sort of bungling friend Root sent sticks $\frac{1}{8}$ thick when I asked for separator stuff, but I'm sure I don't want them any less.

The third objection the A B C makes to the T super is, that it is not an easy matter to make the central and outside rows change places. Friend Root, would you make such change if it were easy? Is there any advantage in it? C. C. MILLER.

Marengo, Ill., Aug. 25.

Yes, friend M., open-side sections, in the early part of 1889, seemed to be growing in favor, but, for some reason or other, have been growing less and less popular. We made special automatic machinery, so that we could make them at the same price as the regular two-beeway section; but now there is scarcely a call for them. The first objection, then, does not bear very hard against the T super. Objection No. 2 can be obviated by the little sticks, but it seems to me as if they would be a good deal of a nuisance. We have three loose T tins, and then, after that, three more sticks—six pieces besides the T-super shell itself to hold the separators and sections. I do not know, friend M., unless it was the great rush during the past season, how we came to give you separator stuff thicker than you ordered. I am very glad now if our oversight was a blessing in disguise. The last objection still holds. On my trip among the York State bee-keepers I found that those extensive bee-keepers, many of them, prefer some arrangement whereby they can shift the outside row of sections to the inside, and *vice versa*. That is why, friend M., I like section-holders. By the way, Elwood uses almost identically our section-holder; or perhaps, rather, I should say, we are using his. See Notes of Travel elsewhere. Hetherington uses the T-super arrangement.

IN-AND-IN BREEDING.

IS IT INJURIOUS?

A correspondent writes, that in his apiary of 75 colonies he has two colonies which cap their honey very white, with very even combs. He says that he would like to propagate these bees for this special quality, and desires to know whether the rearing of queens from one and drones from the other will do, as the two queens are sisters. He thinks that such in-and-in breeding might tend to make the future generations of his bees weakly. If we were sure that both parentages were alike, there might be some chance of making our bees weak by in-and-in breeding; but as it is almost certain that they are not, such breeding as he proposes could not be directly in-and-in breeding. While I do not indorse the Dzierzon the-

ory to its fullest extent, yet it is sufficiently accurate so that, practically speaking, the drones and queens from any mother-queen can not be brother and sister. Now, if our correspondent raises his queens and drones from the same mother, the queens can do no more than mate with a half-brother, unless this mother-queen mated with a drone from her own mother. In this case he would get only three-fourths blood, unless the grandmother to our young queen mated with a drone produced by her mother. Should such a thing as this happen, he would get only seven-eighths blood by breeding drones and queens from the same mother. Here is a point not generally understood by many of our bee-keepers, and one which shows the wisdom of the Creator of the bee. To return to the original question:

Suppose he rears his queens from one queen and the drones from the other as he proposes. It is no way likely that both of the queens mated with brother-drones; hence the young queen will be only half-blood relation to the sister of the mother-queen; and as the drones will be only half - blood relation to the mother of the queens, he can not possibly get a relation nearer than one-fourth. Hence it will be seen that, with no control of the drone, our improving our bees in any one special direction must be only a slow affair at the best, and one in which in-and-in breeding has no very important bearing. Now, suppose we have it all arranged as we wish, and on July 1st we commence to rear our queens, we having plenty of drones flying from the aunt of these young queens. And to make matters more sure, suppose that we have drone-traps on each hive in the apiary, except the one we have selected for our drones; what proportion of these young queens will mate with the drones we wish them to? Well, that will depend upon how near there are other bees to our apiary. If, as we find it usually, not one queen in five will mate the desired drones at this time of year. It is a rare thing to find an apiary where there are not some bees kept within three or four miles of it, or where there is not some tree in the woods that contains bees. This tree, or one of the hives kept by most bee-keepers, will furnish more drones than the breeder will get from his selected colony, as a rule; for colonies that have no attention given them are very prolific in drones. I am satisfied that all the drones of one vicinity have a certain place where they congregate, and that the queens go to this congregating-place when they fly out, which results, as I said before, in the chances being against queens mating as the breeder wishes. To illustrate:

In 1872, Italian drones were reared for the first time as near as three miles of my apiary. That season I purchased an Italian queen, but she gave no drones, as I did not get her till July. There were none but black bees about me up to this time, and no queens had ever shown any yellow in their offspring. This year, about one queen in eight gave workers that were hybrids, many of them being finely marked Italians. With this positive proof before me, that bees mix to a large extent when separated three miles, I can hardly feel pleasant when reading the statement of some, that half a mile in distance is enough to keep two races of bees pure. I find that this congregating of drones and queens occurs only during our summer months, with perhaps a part of September. As the weather becomes uncertain, the loud humming that has been heard on all pleasant days, at a certain place, between the hours of noon and three o'clock in the afternoon, ceases. I find that from then out I am much more sure of having my queens mated with the desired drones than at any other time of the year, unless it be in early spring.

Again, at this season of the year nearly all the drones are killed off except those especially kept by the apiarist, so that, when it is possible to rear good queens at this season of the year, and we have a few pleasant days, in-and-in breeding can be more nearly accomplished than at any other time; yet, as I have shown above, not enough so to cause our bees to deteriorate very much in some time. If, after we find all drones killed off except those we have preserved, we go to the hive having our drones, some rather cool cloudy day when the hives can be kept open as long as we choose without danger of chilling the bees, and without danger from robbers, and pick out all the inferior drones as to size, color, or any other imperfection, and kill them, we shall then have something from which we can improve our stock in the way we are desirous of doing, and still have it becoming more valuable along other lines as well.

I admit that this is a sort of rambling talk, but perhaps the reader may find something of interest in it after the chaff has been sifted out.

G. M. Doolittle.

Borodino, N. Y., Sept. 2, 1890.

You are doubtless right, friend D. Queens are very apt to be fertilized at a distance from home, and they no doubt seek a place where drones congregate. An interesting point comes up here. There are a good many now who are breeding untested queens for market. Those who have just begun in a new locality will probably find that a very large percentage of their queens will turn out to be hybrids. It takes years for a locality within three or four miles of the breeding-yards to become so thoroughly Italianized that nine-tenths of the untested queens reared and sold will prove to be purely mated. There will be bee-trees containing blacks or hybrids, and it will be a long time before these will be Italianized by the slow process of supersedure of old queens or the infusion of new Italian blood in the progeny of young queens.

BEES TAXABLE PROPERTY,

AND FOR GOOD REASONS.

A. I. Root:—Your name has become quite familiar to me through the agricultural press. It seems that your interests must be varied. I have a friend who frequently sends to you for bee-supplies. I see notices of your operations as a farmer, and, if I mistake not, a few years ago I saw an item telling of your experiments with A. N. Cole's sub-aqueous culture, in which I have taken a deep interest. Have you given to the public the results of those last experiments?

What could have suggested the discussion of the advisability of taxing bees, now going on in your columns? Is some bee-owner trying to escape bearing his just share of the burdens of government? The theory of the law in this State is, that every thing that can be converted into property, and that may be made useful to man, shall bear its proportion of tax. There are no exceptions. Every pig, chicken, horse, or ox, must be listed; every bushel of grain, every pound of wool, every yard of cloth, every wagon, cart, watch, or clock must be put down in the list at its true market value, and to its

truth you make oath. Why exempt bees? As valuable and useful as they are, they are certainly not more useful than horses and cattle, than corn and wheat, than apples and grapes. If bees are to be exempted, why not these? I will go further: If bees are to be exempted, why not exempt the houses and barns, and all other improvements that are the products of human labor? If you were to exempt these last from taxes, would not more and better houses be built? Would not better improvements be put on farms and lands? Certainly there would, by the same logic by which you show that freedom from taxation would improve the bee-industry.

Let us look at it first from a selfish point of view, from that of the bee culturist. Would the prosperity of the farmer, the merchant, or manufacturer, which would certainly result from freeing them from the burdens of taxation, injure the bee-man? I think not. Their improved condition would enable them to patronize the bee-man more liberally. The demand for honey would be greater, and, of course, prices would be higher unless the supply were greatly increased.

It seems to me that the bee-man should look at this question with a broader view than that of his mere personal interest. He should surrender the whole question of the taxation of personal property, if he claims exemption for his own business. If he insists on the taxation of personal property at all, he must be willing to patriotically bear an equal share of the burdens of taxation. W. O. FOLEY.

Greensburg, Ind., Aug. 23.

We think you are right, friend F. Bees are property, like any thing else, and we do not see any reason why a bee-keeper should not bear his just share of the general expenses of the county and State affairs. And now we think it is best to drop the discussion here, for there will be two sides to the question until the law settles the matter.

FOUL BROOD.

AN ACT FOR THE SUPPRESSION OF THE DISEASE IN CANADA.

By this mail I send you a copy of our foul-brood pamphlet, in the form of an official government bulletin, which has just been issued under the direction of our Minister of Agriculture, and a copy supplied to every bee-keeper in this province whose name and address could be obtained. An edition of from seven to eight thousand has been printed, besides a German edition for the use and benefit of bee-keepers who can not read English.

From this pamphlet you will see what we are doing here in Ontario toward the suppression and extermination of that curse of the bee-yard, foul brood. In six short months after taking the initiative at our last annual meeting we have a government "Act for the Suppression of Foul Brood among Bees," which is, perhaps, the best of its kind in the world, and have already got in under its provisions a great deal of effective work. I trust our American brethren of the bee-craft may follow our example, and earnestly set about the eradication of foul brood from their country. As there is considerable interchange of bees and honey between the two countries, we are concerned in your action in these premises, as you are in ours.

Our foul-brood inspector has been busy in his official capacity during the past two months, having overhauled hundreds of diseased colonies in different sections of the province, and applied remedial measures which are eminently successful.

While the act under which we are working authorizes us to destroy by fire all colonies with the malignant form of the disease, and although some of the apiaries dealt with were fairly rotten with the disease, our inspector has not yet found it necessary to cremate a single colony. We cure the worst cases and forms of the disease, and we wish all concerned to know it. One indisputable and clear fact is worth a large number of theories. Under these circumstances I may be pardoned for suggesting to our American friends the wisdom and propriety of now ceasing to discuss unprofitable hypotheses, and settling down to work on this foul-brood question. Foul brood can be cured, and cured every time, by a simple hygienic process, and without the aid of the chemist, the druggist, or the drug doctor. This is a broad and radical statement, but I make it deliberately and advisedly. In the bulletin referred to, you will see how we do it. Two methods are given there—one by D. A. Jones and another by Wm. McEvoy, our inspector. Substantially they are the same, being both predicated on the same principle. We have faith in our works, and we wish to inspire you with the same faith. "Go thou and do likewise."

Without undue presumption I would further suggest that GLEANINGS summarize the two plans of treatment of foul brood given in our pamphlet, for the benefit of such of its readers as may need the information; or, what may be better still, give the matter in full. The bulletin, as you will see, also includes the *act*, which would also, I doubt not, be interesting and profitable reading for them.

ALLEN PRINGLE, Pres. O. B. K. A.

Selby, Ont., Aug. 5.

We have been informed that foul brood is very much more prevalent in Canada than in the United States, and hence an act for its suppression became almost a matter of necessity. Our Canadian brethren are to be congratulated for the vigorous manner in which they have taken hold of the matter. The "Bulletin" referred to above is before us. It is issued by the Ontario Department of Agriculture, and is, therefore, under the official insignia of the government of Ontario. The method of cure is, briefly, the starvation plan—the one, and only one, in our large experience, which we practiced with success; and the same has been incorporated in the last three or four editions of our A B C of Bee Culture. As it has been already given three or four times in these pages, it will not be necessary to repeat it again. The act for the suppression of the disease, briefly stated, is as follows:

The Ontario Bee-keepers' Association shall appoint an inspector and a sub-inspector, whose term of office shall be for one year. The inspector shall visit any locality in the province of Ontario, whenever directed by the President of the O. B. K. A. If he finds the apiary diseased, he shall order the infected hives and colonies to be destroyed by fire, or be treated by any method which the inspector may deem reliable or safe. Any owner of diseased colonies who shall sell diseased bees, shall, on conviction, be fined not less than $50 nor more than $100, or be imprisoned for any term not exceeding two months. If any owner shall refuse to allow the inspector to examine his apiary, or should such owner refuse to destroy any infected bees and appurtenances, he shall be liable to a fine of $50 for the first offense, and $100 for the second and each subsequent offense. The O. B. K. A. shall include in its annual report to the Minister of

Agriculture a statement of the inspector's work—number of colonies destroyed, etc.

For a complete copy of the act, apply to A. Blue, Toronto, Ontario. In another part of the bulletin, before discussing the method of cure, the cause of the disease is assigned to rotten or decaying brood, either from chilling or otherwise. In fact, the inspector, Mr. McEvoy, lays particular stress on this. We can not believe that foul brood starts without at least the germs of that disease. We have had a great many colonies in the apiary during the spring that had more or less chilled brood; but they never developed into any thing serious. Rotten brood may be a favorable medium for the growth of the *germs* if they are *already* present in the hives; but we can not think that this is of itself a *cause*. We may have the very best of land in which to grow corn; but corn will not grow unless there is first the seed. Further on in the bulletin we notice that there is a difference of opinion as to whether it is necessary to scald or disinfect diseased hives. We have tested that matter very thoroughly in our apiary. At one time we took twenty that had contained diseased bees, and put in healthy bees on frames of foundation. In every one of the twenty, foul brood broke out in from one to two months. At the same time we tried another lot of about an equal number, putting diseased bees on frames of foundation in hives that had been scalded, and a complete and permanent cure was effected in every one. Where hives had not been scalded long enough, the disease reappeared. We are very certain that Mr. McEvoy is wrong in thinking or advocating that diseased hives taken from diseased colonies are harmless; and we are equally sure that Mr. Jones is right in advocating that all such should be disinfected. If the bee-keepers of Ontario get the impression that hives from foul-broody colonies will not again transmit the disease, they will find, sooner or later, that they are making a most fearful blunder. As Mr. Pringle says, it is better to be on the safe side; for, "if the disease might in one case in a hundred be so propagated, the precaution of disinfection would be amply justified." We are glad to notice that the act itself directs that all hives and appurtenances in contact with foul brood shall be disinfected.

THE HOFFMAN FRAME.

A GOOD TESTIMONIAL FOR IT.

I should like to add my experience with the Hoffman frame. Some 12 years ago I was keeping bees near Baptisttown, N. J., and used a frame ⅞ x ⅜. I bought some bees of A. W. Lundy, living at Frenchtown, N. J., the pioneer bee-keeper of that section, I think, in 1878. The frames had a bottom-bar ½ x ⅜. I liked them so well after using, that I made mine ⅜x⅜. Soon after, Mr. Lundy made the ends of his frames 1 1/16 or 1½ wide, the top ⅞ wide, for ¾ of an inch, with a top-bar ⅜x⅞. The bottom of the end-bar was cut down to ⅞, like a Hoffman end-bar. About this time I adopted the Hoffman frame, made with a bottom-bar 5/16x⅜, and used them until I came to Florida, in 1885.

Some of the advantages are, moving from one to any number of frames to one side to get at a central frame by using a screw-driver as a lever; can pick up one to four or five frames, and carry where you wish, and no danger of mashing bees. In moving a hive with empty frames, foundation, or, when full of bees, the frames do not slide together, nor do the bottoms strike, nor are they ever *stuck* together. The bees are more easily confined at the top of the hive, as the ends of the top-bars are close fitting, and in the winter and spring the top corners of the frames, the hardest part of a hive to protect, forming virtually a dead-air space, while the narrow bottom-bar allows dead bees and debris of all kinds to drop to the bottom-board. To be used without reversing for box honey, I believe it has no superior. I forgot to say, that, with a narrow bottom-bar, combs are built clear down to the bar.

The bees built very few mounds from the bottom-board. The top-bars form practically a queen-excluding honey-board, and much less comb is built between frames and sections than where plain ⅞ top-bars are used, and much less propolis is used.

When used with a dummy at the side of the hive there is no difficulty in getting the first frame out; or where side boxing is practiced. Many other advantages that have been mentioned I need not recall; but for certain localities, methods of management, and certain individuals, I think they are the best. JNO. B. CASE.

Port Orange, Fla., Aug. 22, 1890.

BEES ATTACKED AND DRIVEN OUT BY RED ANTS.

THE RED ANTS OF TEXAS.

On the 22d of July, bees commenced robbing a hive that was strong but queenless, early in the morning. I closed the entrance to about ½ inch, and left to go to my work. I got back about 11 o'clock, and found the combs broken down and honey running about the ground. I had to open the entrance to give more ventilation, and by night they were completely whipped out. The next day we had a heavy storm. The wind blew two 12-inch boards that were fastened together in among my hives, spread the contents of four all over my ground, and broke the cover and side of another. It may have been some minutes before I discovered the mishap, and it was raining and blowing so hard that it was a hard matter to stand under it, and some little time before I could get the hives set up and the frames of lower and upper stories in place. Very few frames had broken combs, but most of the bees lay drenched on the ground. Upon examination I found two queens missing. Next evening I was called up. Bees were swarming. I found a colony of red ants had left their nest and invaded one of the hives that had lost its queen. There were ten ants to one bee, I should think. The bees had no chance. The hive was full of ants, covered with them. The ground for yards around was covered. Thousands had wings and thousands without. Their sting is worse than a bee-sting. They were evidently mad, and to go among them was to have them all over you. The hole into their nest was close to the hive. Several times I had buried a bottle and caught a lot of the ants, trying to destroy them. It seemed a premeditated plan of retaliation on the bees. The bees went into a tree.

I hived them several times, but they refused to stay anywhere but in the tree. I placed a box over them, and after several days of wind and rain they went up into it. I smeared them well with honey, and emptied them into a hive that was rather weak. Next morning they all lay dead outside. My experience this year has been, out of seven swarms hived on foundation, empty combs, or empty frames, 4 went off; out of 22 hived with a frame of brood, none went off.

Is the following, reason or instinct? A large spider was chasing a small one in a bush. A line of web ran from the bush to the top of a fence. The little one ran up the line and the big one after him. When about half way, the little one was nearly caught, and he turned round and bit the line in two. He fell to the fence, and the big one back into the bush.

Lytle, Texas, Aug. 8. GEO. E. HAILES.

Friend H., you surprise me by saying that the sting of the red ant is worse than that of a bee. They must be much larger, I presume, than any ants we have here. Perhaps Prof. Cook can tell us something about it. Why didn't you pour coal oil on the ant colony? Surely that would have "fixed" them.—Your testimony in regard to preventing new swarms from absconding, just about accords with our experience.—About the spiders, I should not call it either reason or instinct, but only an accident. I can hardly believe the small spider "figured out" that cutting the rope would give him the advantage.

RAMBLE NO. 28.

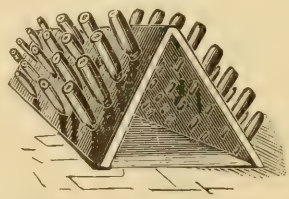
IN STEUBEN COUNTY.

We found, after a few days' trial, that the county-house of Steuben Co. is a model institution. Mr. Eli Carrington, the keeper, has held his position for eighteen years. The inmates are well fed and comfortably clothed, and their spiritual wants are attended to by hearing the gospel preached nearly every Sabbath.

It is well known that temperance advocates lay much stress upon the poverty-producing qualities of a too free use of the bottle. In our investigations in this home of the poor we found substantial proofs of the statements. Mr. C. informed us that fully two-thirds of the inmates were brought there either directly or indirectly by the use of intoxicants. Here is a man with a leg off, caused by injury by cars, while drunk; here is an excellent carpenter, able to earn the highest wages in his trade—is handy at repairing or making articles at this place; but just as soon as he earns money it goes for drink, and he becomes a most degraded drunkard. Here is a young man, strong, healthy, and capable of earning good wages on a farm, and making himself an influence among his fellow-men; but the earning of a little money allows him to invest in degradation. So we might enumerate other instances of wasted lives. But, oh! the saddest scene of all is a death and burial of the poor—no friends to shed a sympathizing tear. A few men deposit the body in its final resting-place, where no mark is put up to indicate that a human being is there buried. A minister preaches a short sermon to the living inmates, and they are soon forgotten. The sad lessons learned from these paupers, and the cause which led to their misery, will ever be remembered by the Rambler.

Bath has several fine churches. We attended the Baptist and Presbyterian. In the latter we found a very large Sunday-school, and what is reported to be the largest young men's Bible-class in the State of New York. There were over 150 in the class, taught by the editor of the leading paper of Bath. We found one of the secrets of his success in the *personal* work he devoted to the cause. His religion seemed to be the every-day kind, and the seasonable word was spoken at all times and occasions. Would that Sunday-school teachers would go and do likewise all over our land!

With the county-house as a center we directed our rambles in various directions. One very interesting point visited was Hammondsport, on Keuka Lake, the very center of the great grape-growing industry of the State. The climate near these lakes in Central New York seems to be adapted to small-fruit culture, and especially grapes; but on the shores of Lake Keuka seems to be the natural home of this rich fruit, and thousands of acres are under cultivation. Thousands of tons of grapes are shipped in baskets and crates to be consumed according to nature's way; but tons are also used in the manufacture of the various wines known to the trade. The Pleasant Valley Wine Co. is the largest concern of the kind, and uses tons of grapes. The process in its first stages is much like making cider from apples. A similar grater is used, and for expressing the juice a Boomer & Boschert press is used. The wine is then kept for a time in large tanks. It finally is put into bottles, and stored in a dark cellar. Candles were lighted, and we passed between long rows of bottles piled up like stove-wood, several thousand bottles in a pile. After some weeks they are taken from this pile and inserted, cork down, in long racks, where they remain a long time, but being often disturbed, and put back again. In hot weather the men who handle the bottles have to wear wire masks over their heads, for there is danger of being severely cut by bursting bottles. Our guide had his hand bandaged from such a mishap; and though it was cool weather at the time of our visit, we could often hear the pop of a bursting bottle. Our guide informed us that about



RACKS OF WINE-BOTTLES.

thirty per cent of the wine and bottles was thus wasted. Coming to the upper regions again, we were shown machinery for washing, for filling, corking, tinfoiling, and labeling the bottles, until finally they looked so enticing the Rambler thought of getting one into his pocket; but a reconsideration prevented. We imagined how we should like to see the honey business just boom in this way, and see all of this work done in a factory for preparing honey for market: but this, perhaps, is an idle dream, for honey does not pander to the perverted taste and passions of men.

Our guide finally led us into a little carpeted room with easy-chairs and a round table, and invited us to sit down. Several bottles and wine-glasses were procured from the next room, and, said he, "Gentlemen, what will you take?" My traveling companion said he had no choice. The Rambler said his choice was not to drink. A bottle of champagne was, however, opened, and the glasses filled. Ah! it appeared to be good wine; it

worked aright in the glass, sparkling like so many rays of light. It looked very fascinating. Our traveling companion used up two glasses. Our guide also helped himself, but the Rambler's glass was not emptied. We learned that there was much drunkenness about Hammondsport, and we were pointed to a farm on the hillside where a man had such conscientious scruples about the manufacture of wine from grapes that he pulled up his vines and devoted the land to other purposes. That the moral conscience of our whole land were educated up to this point is the earnest prayer of the RAMBLER.

RESTING-ROOM. PLEASANT VALLEY WINE CO.

BEE BOTANY.

PROF. COOK NAMES A FEW HONEY-PLANTS IN MISSOURI.

Prof. Cook:—I send you by this mail a number of flowers which I should like to have you name through GLEANINGS, if not imposing too much on good nature. No. 1 is a weed that grows mostly on uncultivated or abandoned fields, and along roadsides, to a height of four to six feet. The flowers commenced opening the last week, and will continue until frost. I feel certain that it furnishes the greater part of our autumn honey here. Friend Root says it is a species of boneset.

No. 2 is a kind of creeping vine, not a native here. It blooms from about July 15 until frost, and the bees work on it almost continually when the weather is suitable. It is very hardy and thrifty. The roots seem to go a long distance under ground, and, where exposed, they sprout out and grow into vines. No. 3, I suppose, is a species of mint. It does not seem to be indigenous here, as I know of only one small patch. The bees work very vigorously on it.

No. 4, I suppose, is the heartsease that in some localities produces the principal crop of autumn honey, and was described some months ago by you. The bees work on it here occasionally, but it does not amount to much in the way of producing honey. We have two or three more closely allied to it, which grow in profusion on low ground, but bees seem to pay little attention to them.

Nos. 5 and 6 are not honey-plants, but furnish an almost unlimited amount of forage for cattle on the islands in the Missouri River. No. 5 is known here as sticktight or beggar-lice; it grows to a height of from 3 to 5 feet. On the sample I send there are flowers and seed not fully developed. When ripe, any one who walks through them, if he has on woolen pants, will ever afterward remember them.

No. 6 is known here as peavine, but it seems to be more of a bean. The pod, when ripe, has a peculiar habit of suddenly flying open, each side curling up, throwing the beans in every direction. As you will see, I have just taken pieces of the vine. S. E. MILLER.

Bluffton, Mo., Aug. 26.

Prof. Cook forwarded the above to us, and replies:

No. 1 is *Eupatorium serotinum*, or one of the numerous bonesets, all of which are valuable honey-plants. There are many species of this important genus in the United States. *E. serotinum* is said by Gray to grow in low grounds from Maryland to Illinois, and South. No doubt Bro. Miller is right in the opinion that this plant gives those in his vicinity the major part of their autumn honey. The bee-keeper who has ample marshes near his bee-yard is in luck, as the home of the eupatoriums is in our marshes.

No. 2 is matrimony vine, *Lycium vulgare*. This is introduced from Southern Europe. It is planted, and, as Mr. Miller suggests, has run wild in some sections. It belongs to the night-shade, or potato family. I have often heard of this as a valuable honey-plant. If bee-keepers who live where this is hardy wish a shrubby vine, this is a good plant to grow. This family contains the potato, tomato, night-shade, tobacco, ground-cherry, etc. It is not very rich in honey-plants.

Mr. Miller is right again, for No. 3 is a mint. It is known as mountain mint, *Pycanthemum muticum*. No wonder the bees work on this vigorously. The mints are wonderful honey-plants, and it seems to me to be more independent of the weather than do most of our honey-plants. It occurs to me that, if any plants are worthy of cultivation exclusively for honey, they are some of the perennial mints. I am in hopes to cultivate, in a small way, numerous mints in hopes to find the best honey-plant in the family.

No. 4 is the famous heartsease, *Polygonum Pennsylvanicum*. It seems that this plant does not secrete in all places at all times, or else has rivals that attract the bees from it.

No. 5 is tickseed, or bush trefoil, *Desmodium Dillenii*. It is one of the members of the clover family.

No. 6 is also one of the pulse, or clover family. It is *Phaseolus helvolus*, or wild bean. It is rather strange that these last are not honey-plants, as so many of the leguminosæ are.

Agricultural College, Mich. A. J. COOK.

ODD-SIZED HIVES.

THE TRIALS OF ANOTHER DISGUSTED BEE-KEEPER.

We were greatly entertained with Rambler's account of Blake's tirade. Poor Blake has our heartfelt sympathy; for, next to a smoky chimney, an odd-sized bee-hive is the meanest thing on earth, and this I know from an aggravated experience. When we began bee-keeping we were sweetly beguiled into buying "Controllable" hives; but what they controlled we have failed to find; certainly not our temper, for not a supply-dealer kept any thing to fit; every thing must be made to order, costing more, or we must patch up as best we might, making needless work; and when done it resulted in some amusing experiments—amusing now in the light of added experience, but far from it at the time.

Our next venture was, at a time when swarms appeared faster than hives, to buy second-hand Simplicity hives from an accommodating townsman; but, alas for our ignorance again! We had no regular bottom-boards, but were told to let the hive project just far enough over the end

of a board to form an entrance. Note the result: In March, some evil spirit, either in the form of a dog, cat, or meddling person, pushed the hive forward four or five inches of course chilling a fine strong swarm of bees. It was no fault of the hive, except the lack of a proper bottom, and we decided to adopt the standard frame, put in some secure hive; so this season we bought of a supply-dealer, not a manufacturer, as we ought, a lot of hives in the flat, and, by his unpardonable blunder, instead of giving standard frames he sent another odd-sized hive; and, as we had waited late, and the swarming season was at hand, we accepted them. Well, we then had three sizes of frames in a small apiary. We could say with Blake, "Durn the hives." At last the head of the family, being of a mechanical turn of mind, suggested a remedy, and we have just adopted it, and now we breathe a sigh of relief. We have uniform frames; we can unite or divide as we please. We cut enough off the bottom of each frame in the Controllable hives to make them standard depth, the length fortunately being the same, and cut enough off the bottom of each hive to make it right. The new ones we found, after trying three (and not liking them), could be remodeled; and, by getting new frames, be all right. As we have no suitable place prepared for doing such work, the cutting of frames was done in the open air, with the bees still on. We placed the rejuvenated hive under the shade of a tree some rods away, putting in first an empty frame; then carrying a full frame from the swarm to be operated on, we smoked as many as might be off, upon the empty frame, saved the end pieces, cut the comb, nailed on the bottom, and, putting it in place, went for another. It took two of us from half an hour to an hour to transfer each colony; but we think it will be worth the trouble and the time.

Our bees have done finely this summer, none of them making less than 35 lbs., and our best about 70 lbs. They are still working on buckwheat, and have been for about six weeks, as we sowed it for a succession, and we hope to have very little feeding to do for winter.

MRS. G. M. BARKER.

Natick, Mass., Aug. 28.

Thank you, my good friend, for the moral you have given us against adopting frames and hives of odd sizes. Your remedy is the rational one—cut them down to orthodox dimensions or smash them up.

ERNEST'S NOTES OF TRAVEL AMONG THE YORK STATE BEE-KEEPERS.

CLOSED-END VS. HANGING FRAMES.

I may say at the outset, that one of the main reasons why I made this trip was to learn something about closed-end frames, and, in particular, frames at fixed distances, whether closed-end or otherwise. Mr. Elwood, Capt. Hetherington, and almost all bee-keepers whom I visited among the York State hills, are using fixed frames of some sort. It will be remembered that Elwood and Hetherington use the closed-end Quinby frame and system. Their frame, however, is about 2 inches shorter than the regular Quinby, retaining, I believe, the original depth.

Well, after leaving Mr. Tunicliff, Mr. Elwood and I started *en route* for one of his out-apiaries, and were discussing fixed distances and the rapidity with which they could be handled, as compared with the common suspended or hanging frames. Said I, "*If* fixed frames can be handled as rapidly, and at the same time without killing bees as the hanging frame, they will be the frame of the future." Mr. Elwood did not boast very much what he could do—in fact, he did not make any very great claims as to the system, etc., which he was using. Some time ago, in an article he said he could handle the closed-end Quinby as rapidly as we could the hanging frame. I well remember at the time I did not doubt his veracity, but I did somewhat question his knowledge as to the manipulation of the suspended frame. I told him, as we approached one of the apiaries, that one of the privileges that I had long desired was to see him or some other bee-keeper using the Quinby frame handle them as rapidly as the hanging frame, and not kill bees.

By this time the yard which we were to visit loomed up in sight off in the fields at the foot of one of those big hills. It is located at some distance from the road, partly because of the protected position, and partly because it is secluded from those who might pilfer or meddle with the hives. We drove up under a low-spreading evergreen not a great way from the apiary. We there unhitched and led the horses a little bit further off and gave them their oats. As we did so, Mr. Elwood said there was a spring up on the hillside, and that, before eating our lunch, if I felt inclined we would go up and see it, and get a pail of water. After strolling a little distance among the rich undergrowth, suddenly a beautiful spring of water came in sight. Perhaps I might as well remark, by way of parenthesis here, that all the York State water, especially from the hillside springs, is clear and cold. In my own State of Ohio it is not very advisable for me to drink from different wells or springs—at least to any great extent; but on my bicycle tour through New York I drank freely from every roadside spring with impunity; and, oh how good, pure, and cold it did taste! What would I have given if I could have transported one of these springs, that seemed so common in York State, to my own home in Ohio! Doolittle had water from one of these springs piped to his house. I remember how thirsty I was, and how refreshing the water. Just thing of it—a running spring in the house, of beautiful water! But, to return:

Mr. Elwood and I secured the lunch-basket; and after hunting around for a good log to sit on, we partook of a hearty lunch; which, being dispatched, we put on our veils and proceeded to the yard. I had expected to see large Quinby hives; but, to my surprise, the brood-nest or brood-chambers were no larger, on the average, in cubic capacity, than are those in our eight-frame Dovetailed hives. I had supposed that the York State bee-keepers, like the Dadants, advocated and used large brood-chambers. So far as I was able to discover, however—in the production of comb honey at least—they practice contraction, and use brood-chambers no larger in capacity than an ordinary 8-frame Langstroth hive. The frame being 2 inches shorter than the original Quinby, 6 of these frames would be about equivalent to 8 of the Langstroth, I should say, without figuring. I was surprised to learn that all or nearly all of the bee-men of York State who have adopted the Quinby closed-end frame, like Mr. Elwood and Capt. Hetherington, use it 2 inches shorter, and it is no doubt a better frame for the reduction in length.

After lighting the smoker, Mr. Elwood and I entered the yard, and he proceeded to open up a hive while I was looking on with eager expectancy. The entrances were on the under side of the hive. Blowing a little smoke under to drive away the guards, he lifted off a case of sections. I expected to see those frames come

apart with a snap and an onslaught of bees. There was no snap or onslaught. He picked up and handled the frames as rapidly as you or I can handle suspended frames; and I am not sure but he manipulates them more rapidly. Mr. Elwood then examined continuously 25 or 30 other colonies; and when I came to think of the time he had spent in doing it, of the queens we had seen, of the brood surface we examined, I was simply astounded. I feel pretty sure that I could not have examined the same amount of brood surface in the hanging frame in so short a space of time. Did he kill any bees? Not one that I saw. Did the frames stick together? Scarcely at all; and yet the bees were hybrids. Here was a large yard of, say, over a hundred colonies. I do not remember to have asked how long it would take him to examine each one; but at the rate he handled those before me he would have gone through the whole apiary in four or five hours, and hunted all the queens besides. He did not move very rapidly; on the contrary, his movements were deliberate, but they counted.

I am well aware that this is a heavy testimonial for the closed-end frames on the Quinby plan; but I deem it but just to give it, because I know the bee-keepers of the West, and those who have been using the hanging frames, have somehow got the idea into their heads that the closed-end frames were simply intolerable, and that the bee-keepers who were using them were either very much behind the times, or so stubborn as not to be open to conviction that there might be something better. Indeed, when we consider the fact that nine-tenths of the bee-keepers of that section of New York where I visited are using fixed frames, and are intelligent and progressive men; and when we consider the other fact, that they make bees *pay*, we must admit that their system is not so clumsy and awkward, after all. Capt. Hetherington, years ago, used hanging frames faithfully, and finally discarded them for the closed-end Quinby. Hetherington, with his three or four thousand colonies; Elwood, with his 1300, and a great many others owning from 300 to 400 colonies in this part of New York, use only fixed frames, some Quinby and some Hoffman.

NO BURR-COMBS.

While Mr. Elwood was examining the hives I was pleased to note that there were no burr-combs on the tops of the frames. No, I do not believe I saw a single small spur. When I came to inquire into the matter I found he used top-bars fully an inch wide and ⅝ of an inch thick—perhaps in some cases ½ inch thick with *fixed distances*. I emphasize this purposely, because I believe that this is one of the secrets. I could not discover that any of the bee-keepers who had used fixed distances with top-bars ⅝ of an inch thick and an inch wide, in that section of country, had used honey-boards. No, a honey-board was a thing that none of them had ever tried. With no burr-combs, what need had they of them? Now, if I am able to judge correctly, with fixed distances we can have *thinner* top-bars; but with hanging frames and no arrangement for automatic spacing, in order to do away with burr-combs there must be thicker top-bars. I examined into this matter very carefully all through this trip; and since my return home I feel confirmed in what I have said above in regard to the presence or absence of burr-combs, their cause and prevention.

I am very well aware that I have given some flattering testimonials for the Quinby system. I am not sure, however, that bee-keepers generally would not like the open or movable sides. The hive looked a little top-heavy also, and a good many bee-keepers incline toward the shapely appearance of a thing as well as its practical utility with the two combined. I took some views of the apiary, and of the hives in particular, with the Kodak; and when the same are reproduced for GLEANINGS I will then explain in detail how and why Mr. Elwood can handle those frames so rapidly, which I can not do now without the aid of engravings.

After leaving this yard we visited two or three others. All that I saw were located in spots that were peculiarly picturesque. The scenery—perhaps a big hill on one side, a valley beneath, mountains over in the distance, all combine to make many of the locations grand in their outlook. As our time was limited we did not visit all of the yards, for one yard is largely a repetition of the others.

ELWOOD'S MAMMOTH BEE-CELLAR.

The next morning, as we expected to visit other bee-keepers, I took a walk around the premises. "Oh, yes!" I said, "there is that enormous bee-cellar that I want to see." Mr. Elwood conducted me to his mammoth repository under his large bank barn. If I remember correctly it was divided equally into two compartments, each one capable of holding perhaps 500 colonies. Just think of it—1000 colonies, practically, in one cellar! We bee-keepers who talk about wintering 50 or 60 colonies in a cellar successfully might find it another thing to bring through alive 1000 stocks in a single repository; and yet, if I understand correctly, our friend is generally successful. In this part of York State they have very severe winters; and, as a general rule, I found that bees are wintered indoors. I noticed that Mr. Elwood uses a sub-earth ventilator, and he believes it to be a good thing at times. He does not, however, use it with its mouth outdoors open full width most of the time, but only on occasions.

"What do you do," I said, "when it becomes too warm, and the bees get to roaring—that is, uneasy?"

He took me out to the mouth of his sub-earth ventilator, and showed me how he could, by enlarging the opening, let in enough cold air to reduce the temperature enough to accomplish the desired end. The winters being so cold, he generally has no trouble from a too high temperature in the cellar.

"Then you cart all your bees home," I said, "and finally put most of them into that cellar?"

He assured me that they did. At the risk of letting the readers of GLEANINGS think (if they do not already think so) that I have gone pretty nearly crazy on fixed distances, I will remark again, that, were Mr. Elwood using hanging frames, or, as he calls them, "swinging" frames, the necessary preparation for getting a colony ready for moving—that is, so many of them, would render moving impracticable. I do not wonder that, with their rough and uneven roads, and their terrible big hills, they all use frames at fixed distances, even if there were no other reason why they should do so. I should like to be on hand when the 1000 or 1200 colonies are deposited in the front and back yard, just preparatory to putting them into the cellar. It must be a sight to behold, and I hope our friend Elwood will some day call upon his nearest photographer to give us a view of the scene.

Before I forget it, perhaps I had better explain that, instead of removing the bottom-board after putting the bees into the cellar, the boards have a hole six or eight inches square, in the center, and this hole is opened or closed by means of a convenient slide. When contracted it acts as an entrance during the summer season; and when opened wide it gives ample bottom ventilation while in the cellar. While we were discussing these things, we

slowly emerged from the cellar, and finally entered the shop, or honey-room, partitioned off from one end of the barn. I discovered here that Mr. Elwood uses the section-holder that we use on the Dovetailed hive. When we first introduced it I was not aware that such extensive bee-keepers were already using it and liked it, although I knew that the idea was by no means new. The fact that such a man as Elwood uses them, in preference to even the T super, confirms me in the belief that they must be one of the best comb-honey arrangements made.

I noticed in this honey-room that friend Elwood uses a four-piece section with flat-bottom foundation. The sections are put together with a machine of his own invention, and they are glued solid together. I tried to break several of the sections when so put together. They certainly were very secure, and no ordinary amount of hauling, even over rough roads, would jar them out of true.

"There," said Mr. Elwood, pointing to a few crates of honey, in one corner of the room, "is all the *white* honey I have obtained this year."

"That will not be your entire crop?" I said.

"Oh, no!" He replied, he would get *perhaps* 25 lbs. per colony of mixed and buckwheat honey. The basswood has been almost a failure with him during the past season, and the clover was but little if any better. It was the worst season he had experienced in many years.

"What is your average per colony?" I asked.

"If we get 50 lbs. we are satisfied," he said.

Let us see—50 lbs. multiplied by 1300—65,000 lbs. It seems as though he ought to be "satisfied." If Capt. Hetherington (and I presume he does) obtains in a fair year a proportionate amount, his crop would make the "eyes" of some of us bee-keepers stick out pretty prominently.

HYBRID BEES AND BUCKWHEAT HONEY.

Speaking of buckwheat honey above reminds me of the fact that Mr. Elwood keeps hybrid bees almost exclusively. He rather prefers them because they are a little better for working on buckwheat. Through my trip in York State on the bicycle, I believe I do not exaggerate when I say that I must have seen thousands of acres of buckwheat. The farmers, instead of confining their crops to the proceeds of a single acre, raise it by the ten-acre fields; and I believe it is usually a paying crop. I was pleased to notice, also, that the Japanese buckwheat was being introduced very largely. The bees work on it just as industriously as they do upon any kind of buckwheat. Several fields that Mr. Elwood and I passed were fragrant with the aroma. In fact, I passed on the bicycle so many buckwheat-fields that the odor became sickening to me, as I do not like buckwheat honey. But the people in York State, I am glad to know, are not like me. At most of the hotels where I stopped, they had this black-looking honey on the table. By making inquiries I learned that some of their guests preferred it. They like that rich dark-looking honey of their fathers. I personally came across a great many people who prefer buckwheat to any other they had ever eaten; but I am afraid I should have to go a good way in Ohio before I could find one who had this preference.

Mr. Elwood's hybrid bees I found were cross. Let me relate a little incident.

I told Mr. Elwood I should like to make some detail photographs of one of his hives. We accordingly proceeded to the yard. He pointed to one that showed well, and was about what he used in all his apiaries. "I will just change this cover," said he, removing one from another hive, "and put it on the one you are about to photograph." As he did so he happened to let it drop on the hive to be "Kodaked,"—enough so as to stir up the sentinels. Neither of us had a veil on. I stood at a respectable distance, say six or eight feet, in front of the hive, Mr. Elwood a little in the rear. My Kodak was all primed and ready. Just then those pesky hybrids began to pour out like a hailstorm. I wanted to run. Sting—it seemed as if I could not endure to take even a snap shot at those fellows—or, rather, at their hive. The first one planted a sting right on my nose, and, of course, the rest of them saw fit to visit the same vicinity, attracted by the poison. Now, you know I could not stand that. My ever ready veil was in my hind pocket. My eyes were suffused with tears, and I hastily laid the Kodak on the ground, whipped out the veil, and drew it over my head in some fashion or other. Somehow or other I felt like running. How it would look for me, I thought, on the editorial staff of GLEANINGS, to pick up my things and run in wild haste out of the yard. The veil was pulled over, but those scamps did not stop to buzz in front, but with provoking deliberation crawled up under and made things worse. I pulled out the Kodak, and said, "Now or never;" and while the tears were streaming from my eyes with pain, I managed to be able to see enough from one eye to get a view of the hive. This time I did not wait, but touched the button, and the shot was taken. As I did so I looked up to see where my friend Mr. Elwood was. Presently I espied somebody running, and his arms were revolving about his head in a characteristic fashion. Now, Mr. Elwood is slightly baldheaded, and his hat was gone. As I saw him rub sting after sting out I did not blame him for retreating. I understand from his men that he can stand as many stings without wincing as anybody else; but it did tickle them to see their big boss run from the bees. One of Mr. Elwood's little boys was heard to cry out lustily about this time, for he was out in the yard bareheaded and barelegged. His father directed him to his mother, and then called out: "You didn't catch me in that picture, did you?"

"As you were running, I presume I did," I replied; at least, I was mean enough to say I hoped so. I took time now to rub the stings out of my nose, and mentally reflected how it would look to go around among the bee-keepers, the representative of GLEANINGS, with a nose somewhat immoderate in size. It did not swell, however, and after a couple of hours I felt no ill effects. As we started to leave that morning for another ride among bee-keepers with Mr. Elwood, this little boy who had been stung came out to greet us with a good-by. His face was considerably swollen, and it looked as if he had been stung by a bee. My camera was attached fast to the bicycle, or I would have been cruel enough to have taken his picture. Mr. Elwood, although stung much worse than I, seemed to show no ill effects.

In order that we might visit together, the bicycle was tied on to the wagon, and we started for the home of Mr. Julius Hoffman, by way of the Van Deusens, the people who make that beautiful flat-bottom foundation. We went over some terribly bad hills—hills that I should not care particularly to have gone over with a bicycle; and I was glad there were some good horses ahead of me that were used to that sort of business. More beautiful scenery was presented to me, and ere long we were overlooking the flat-bottom valley which has been before described by our friend Rambler.

AT SPROUT BROOK, N. Y.

In a few moments more we were having a cordial handshaking with the Van Deusens. We laughed and talked about Rambler and his

visit at their place. In view of his experience, I did not ask to go through their establishment; but I was shown some of their beautiful foundation. They have quite a large factory, and evidently do quite a business. I took particular pains to notice that this country was very flat bottomed—an appropriate location for making foundation. We were cordially invited to stay and take dinner; but as my time was limited, I explained that I should have to be moving along.

SNEEZE-WEED HONEY.

PROF. COOK ALSO TOUCHES UPON THE MATTER OF MEDICINAL HONEY.

I have received from Mr. C. P. Coffin, Pontotoc, Miss., a plant for name, together with some suggestions and questions which are of general interest, and so I am pleased to comply with his request and answer through GLEANINGS.

The plant is a species of "sneeze-weed," *Helenium tenui folium*, which Dr. Gray says has become a naturalized weed through the Southern United States. It is one of the compositæ, and so related to the goldenrods, asters, bonesets, beggar-ticks, etc. We can not wonder, then, that it furnishes a generous amount of nectar. It comes of a sweet family.

Mr. Coffin says this is very abundant in Mississippi; that it occupies all waste lands and commons, and is marching on to possess all unoccupied, vacant, and uncultivated territory. It grows as thick as oats or wheat, and crowds out all other plants. It is often the sole adornment of cemeteries and front yards. We see, then, that it is like the ragweed and mayweed north, a monopolist of first rank.

The people in Mississippi know it as "bitter weed." The bees store large quantities of honey from this plant. Mr. Coffin says it seldom fails to yield bountifully, so that the bees fill their hives solid—both stories—with this honey. But this honey is of no value, except for wintering. "It furnishes an unfailing supply for this purpose." But it spoils the goldenrod and aster honey, which is also abundant, and valuable for the table as well as for the bees.

Mr. Coffin quotes an article from a Boston paper, to the effect that an English physician reports that a small bee of Tasmania gathers eucalyptus honey, which has special and peculiar physical characteristics, and has very valuable therapeutic or medicinal properties.

Mr. Coffin asks if the Tasmanian bees could in any way add to the virtues of this eucalyptus honey. I should argue no. True, bees modify nectar, or change it into honey; but there is no reason to believe that different bees affect the honey differently. I presume the honey varies because of the source from which it is derived, and not from the bees that store it.

Mr. Coffin urges further: Granting that the position taken by the English physician is correct, may we not reasonably conclude that honey collected by our *own* bees from plants of known medicinal characteristics would have like therapeutic virtues? For instance, suppose an apiary to be near a large field of hoarhound, which is universally recognized as efficacious in throat and lung affections. Would not the syrup thus made in Nature's laboratory by these wonderful chemists—plants and bees—containing the very essence of the plants, be superior to the syrup which we may make by boiling the leaves with sugar?

In reply, let me say: We must not put too much confidence in such reports. As a people we overestimate tremendously the virtues of medicine. Nature is the great healer. Medicine may occasionally help, but I fear it as often hinders. Dr. O. W. Holmes once said—and who ought to know better?—that it were better for the people were all the medicine of the world cast into the sea; but it would be awful on the fish. Yet if people are to medicate, I for one would urge honey. It is certainly nutritious and wholesome. It has the rare quality of medicine—it is safe.

Again, I do not believe that the nectar secreted by plants necessarily or even probably partakes of the nature of the juice or tissues of the plant. The definition I give my students of glands—and I believe it a correct one—is that they are organs that can take elements from sap or blood, and form a substance peculiar to themselves and unlike any thing else in the plant or animal. Thus, secretions are not like the tissues that secrete them or the liquids from which the elements were derived. The milk of the cow is not blood or beef, nor like them. No more is the nectar of plants—the secretion of plant-glands—like the sap or tissue of the plant. This secretion is a new formation, of the glandular cells, for a specific purpose—to attract insects—and is specific in its character as well as in its function.

Again, we have plants with poisonous juices. These often secrete nectar, but that is not poisonous. Were it so it would poison the very insects it was formed to attract, and so defeat its very purpose.

Mr. Coffin continues: "Nothing was made in vain. May it not be that this bitter honey has very valuable medicinal properties? If so, a knowledge of the fact would be very important. As this plant secretes nectar abundantly from July 15th to September 15th, when there are no other nectar-secreting plants in bloom, the honey can be obtained unmixed with other kinds of honey, and could be put on to the market very easily and cheaply."

I would answer, that morphia and quinine are vegetable products, and no one may say that any vegetable product is worthless or without virtues until he has demonstrated the fact. On the other hand, he should be just as slow to announce virtues till they are demonstrated by actual experiment. Such proofs—like all valuable scientific facts—must come from induction, not deduction. We must demonstrate by actual test that this honey *is* medicinal; then, and then alone, can we recommend its use in therapeutics.

This honey might be extracted and sold cheaply for winter food, in case it is good for that purpose in all climates, and could also be sold for such manufacturing purposes as forming printers' rolls, etc., where the flavor is not an objection. In case we have many such seasons as the present, where in Michigan the bees have not been able to collect enough even for winter, there would be a good market for the first-named purpose. As this honey is so sure and abundant, it could doubtless be sold at a very low rate. Possibly it would do to use in making cigars, where, I am told, much honey is used; and then if it has medicinal virtues it would be right where it would be needed.

Agricultural College, Mich. A. J. COOK.

Friend Cook, I am exceedingly glad to hear you give utterance to the sentence, "*As a people we overestimate tremendously the virtues of medicine.*" As I look upon humanity day by day, I am more and more forced to the conclusion that "we as a people" are floundering in the dark mazes of superstition and ignorance, especially in this matter of *dosing* ourselves. Just think of it! There are at present in the

United States (or at least have been until quite recently) *great factories* built up to make electric belts, medals, and charms, to cure diseases, while every educated man knows that they have not the remotest effect whatever on disease of any sort. In fact, there is not even any *electricity* about them. People feel bad; and if they do nothing at all they almost always feel better after a while. In the meantime they purchase these advertised trinkets, and then give the *trinket* the credit of the cure. Of course, we are a little ahead of the Chinese, and the heathen with their signs and taboo, but I am sure that the large amounts of money that have been constantly paid for patent medicines, and, in fact, for almost all kinds of medicine, is a great mistake and a blunder. People who take no medicine at all are just as well or better off. I wish those words of Dr. Holmes might be rung out over land and sea, until they reach every household. A certain remedy or a certain doctor gets to be the rage, and nobody discovers that the whole thing was only a hallucination until thousands of dollars have been wasted and thrown away. Our friend touches on hoarhound honey. Perhaps he has not noticed that we have it for sale by the hundreds of pounds, if wanted; and it is as strong of hoarhound as is hoarhound candy. To me it is delicious with my bread and butter; but I have not a particle of faith that it has any remedial virtues whatever; in fact, I can hardly believe that hoarhound in any shape has any effect whatever on coughs and colds, but the hot water taken with it *may* have. Now, dear friends, it may be that I am going somewhat to extremes in this matter of medicine and remedies; but I think our intelligent readers must admit that there is at least a great amount of truth in my position. I do not mean to reflect on our regular physicians, for I believe that most of them understand me, and believe, at least to a great extent, just as I do. Take the advice of an intelligent and progressive physician of the present day, and you will not take very much medicine.

STRONG EVIDENCE FOR ONE AND THREE-EIGHTHS SPACING.

THE TESTIMONY OF BARON BERLEPSCH AND OTHER EMINENT GERMANS.

I am glad to find that you give the matter of spaced frames so much attention in your valuable paper, as I think successful bee-keeping demands a brood-frame with fixed spaces. If so, we should certainly know the exact and right distance from center to center. Why the bee-keepers of this country differ so much yet in regard to the exact measure of spacing brood-frames, I can not understand. There is only one way to get this distance right. It is, to find how far the bees, when left to themselves, build their combs apart in the brood-nest. About twenty years ago I settled this matter to my own satisfaction. I began by using a spaced frame of 1½ inches from center to center, and found that distance too wide. At that time I used, in hiving natural swarms, only small starters in the frames, and I found the bees would, in building down their combs, invariably draw in the combs toward the center of the brood-nest, so that the lower part of the comb would be built out of the frame. They would do so until I reduced the space so as to measure only 1⅜ from center to center. As this matter seems to me to be of great importance, I will here quote from whom I believe to be the best authority on the subject. The Baron von Berlepsch, in his unequaled work, *Die Biene und ihre Zucht* (The Bee and its Culture), says: "Dzierzon, the inventor of the movable comb, gave 1½ as the right distance, until Wieprecht* made exact measurements on straw hives that were built out with straight combs. He found, that, although some variations were noticed, in 49 measurements the average distance from center to center of combs was $1\frac{5}{16}$ inches.

"The correctness of this statement, I (von Berlepsch) can affirm with the utmost certainty, as I, in company with Kalb,† also made 49 measurements, the result being $1\frac{5}{16}$ inches as to the average distance."

The German foot is ¼ inch longer than ours; therefore $1\frac{5}{16}$ in. of Berlepsch's German measure would be equal to $1\frac{11}{32}$, or scant 1¾, of our measure. But as the wood of the frames will shrink, and also wear off some, I make the close-fitting parts of my frames exactly 1¾ wide, and I believe this to be the best width. To make the spaces more than 1⅜ will be antagonistic to the nature and well-being of our bees.

If we, for instance, space the combs from center to center so as to measure 1½ instead of 1⅜ inches, then we have an empty space of ⅝ inch between two combs of brood instead of ⅜, as it ought to be; and it will certainly require more bees to fill and keep warm a ⅝ than a ⅜ space. In a ⅜-inch space, the breeding bees from two combs facing each other will join with their backs, and so close up the space between the two brood-combs; if this space is widened, however, to ⅝, the bees can not do this, and more bees will be required to keep up the needed brooding temperature. What a drawback this would be in cool spring weather, when our colonies are weak in numbers yet, and breeding most desirable, can readily be understood.

My hives hold 11 brood-frames. If I space them 1½ the bees would have to occupy an ⅛-wide space of unnecessary and useless room between the brood-combs through the whole length and depth of the hive, as compared with 1⅜-spaced frames. Wider spacing than 1⅜ will also favor and encourage the building of drone-cells and the raising of drones.

In conclusion I will say, Use spaced frames, and have them not more than 1⅜ apart from center to center. JULIUS HOFFMAN.

Canajoharie, N. Y., Aug. 23.

Many thanks, friend H. The evidence that you present out of your long and extended experience, for 1⅜ spacing, seems to me to be convincing. At first I thought Nature was against us in urging 1⅜ inches; but I am very glad to believe that she is on our side, although my good friend Doolittle may argue that she is on his side. If the bee-keepers ultimately adopt fixed distances it is highly important that this distance be settled accurately in the first place. Berlepsch (whose most valuable researches we

*A noted bee-keeper and writer. -J. H.

†A prominent bee-keeper.

value so highly), as we well know, was very careful in his experiments, and his conclusion can not be lightly esteemed. Unless some one else shall bring some incontrovertible evidence to the contrary, let us consider $1\frac{3}{8}$ spacing as the right distance for the average bee-keeper. Perhaps I should remark that friend Hoffman prepared the article above in response to my request made to him in person while I was visiting at his home. In my Notes of Travel I will give an account of my visit to his place later. ERNEST.

ZINC QUEEN-EXCLUDERS.

A SPLENDID TESTIMONIAL FROM A CALIFORNIA APIARIST.

I have taken so much comfort with my 450 zinc queen-excluders this season, I am sure it will be doing my neighbors a kindness to tell them how they work. My hives, and, in fact, nearly all the hives in Ventura County, are made with a bee-space in the bottom and top of both super and brood-chamber, which, when the super is on, leaves $\frac{3}{4}$ of an inch space between the super and the brood-frames. I have always thought this a mistake; but when I began to think of using queen-excluders, I saw that, if a plain unbound zinc excluder, the size of the outside of the hive, were laid on the brood-chamber, and the super on the excluder, the bee-spaces would be all right. I ordered 480 of Root's No. 1 unbound zinc excluders, large enough to fit my hives. I think No. 1 the best, because they allow the bees to pass up and down more freely than the break-joint excluders. After trying 450 of these unbound excluders one season, I am satisfied that they are better in every way than the bound excluders. The super is easily lifted off the zinc, and, by taking hold of one end of the zinc and pulling up and out, they can be peeled off almost like cloth; and if they bend a little, just turn them upside down when you put them on again. I bought the excluders because I had a good many drone combs in my supers; but I would not do without them now, if my super combs were all worker size. It makes a fellow feel good to open a super just before swarming commences, and find about a square foot of drone comb all cleaned up for the queen to lay in. It is ever so much nicer to fool the bees in this way than to shave the heads off the drones. You don't always get around in time to shave the drones' heads off, and what a lot of honey is wasted in rearing them!

When you have no excluder on a ten-frame L. hive, the bees will fill about 7 combs in the brood-chamber with brood, and then run it up in the super instead of filling the brood-chamber clear across. This brood in the super is a great nuisance when you are extracting. In California we leave our supers on all the year round; and if the super is full of honey in the spring, the bees will build up faster than they would if the hive were contracted. Another point I did not discover until I put excluders on all my hives: When the queens are allowed to go into the supers, a good many are knocked off on the ground, and lost, when brushing the bees off the combs. I did not find a fourth as many queenless colonies after extracting this season as usual. I found a few queens that could run up and down through the excluders, but not enough to trouble seriously. If I had my choice, however, I would have the perforations $\frac{17}{100}$ of an inch wide, instead of $\frac{18}{100}$. I have been experimenting by putting queens in a little box, and covering it over with different sizes of perforated zinc. I found but few queens that would crawl through the $\frac{18}{100}$ perforations, but could not find any small enough to go through the $\frac{17}{100}$, and I could not see that it made any difference to workers.

It is easier to take honey out of a super if you have a queen-excluder under it, because the bees do not build so many brace-combs below the super combs. Other large bee-keepers around here are experimenting with them, and I think all the progressive ones, Mr. Mercer included, will soon have them on all their extracting hives. Nearly every bee-keeper who comes here and sees how they work, says, "I wish I had them in my apiary." J. F. McINTYRE.

Fillmore, Cal., Sept. 1, 1890.

You have given us some valuable testimony, friend M., for the perforated zinc for extracting. This and the bee-escape promise to work almost a revolution in the methods of producing extracted honey. You are exactly right, friend M., as to the size of the perforated zinc. By careful experiments which we have been making, we decided that $\frac{17}{100}$ was correct. Before us is some of Dr. Tinker's beautiful zinc, and it is a pleasure to us to say that his zinc so far stands at the head. By carefully measuring, we find that the width of his perforations strikes $\frac{17}{100}$ exactly. The fact that all three of us arrived at this conclusion independently—you in California, and two of us in Ohio—makes the evidence almost conclusive that $\frac{17}{100}$ must be correct. We are at work on a new set of dies. They are to be gauged to this size as nearly as the best machinery can be made to do it. Mr. Alvah Washburn, who made the original comb-mills, and who, in fact, has done all our fine work, is to make the dies, and we hope ere long to have a zinc that no queen will go through. Our old zinc measures about $\frac{18}{100}$, and that is the reason why we change.

Quite incidentally, friend M., you mention another point. In a Langstroth hive, you say bees will fill seven frames of brood, and then go into the super instead of filling out the brood-chamber clear across. That is just the reason why I advise everybody to use the eight-frame hive. In the name of common sense, why have a hive any larger than the average brood-nest? We want the bees to fill the brood-chamber entirely with brood, or very nearly so; and then if they are able to get any honey we want to compel them to put it just where *we* want it—in the supers. E. R.

GOLDENROD.

THE BEES ARE JUST "WHOOPING UP" THE HONEY FROM IT IN MICHIGAN.

Our aged friend J. L. Davis, of Holt, Mich., once said to me: "I am very fortunate in the large marsh" which extends for some distance in front of his house. Many people would not appreciate readily the wisdom of this remark. A marsh for a dooryard and constant outlook is not generally among the aspirations of those æsthetically inclined. But should such a one visit friend Davis at this season, and look out

upon his field of autumn bloom, with the goldenrod predominating, he would hardly criticise our venerable friend, even from the standpoint of æsthetics.

But æsthetics was not in our friend's mind; he was thinking of honey and his pocket-book, and well might he; for, many a year his chief honey product has been from these same autumn flowers.

Friend Root, you and I have pictured to ourselves the joy which must come to the desert pilgrim as he comes to an oasis. Well, that is the Michigan bee-keeper's condition just now, who has a wealth of autumn bloom to draw upon. Our bees have been idle the whole season till now, when they are just "whooping it up" as our boys say. We can smell the honey in the evening for rods from the apiary.

I wish, Mr. Editor, any skeptics on the matter of goldenrod as a honey-plant might visit me now. Our bees are just swarming on it. Yesterday I saw asters, goldenrods, bonesets, and the tall sunflowers just alive with bees. I have never seen bees very much on the sunflowers (*Helianthus*), and so I was very much interested in this observation. We find the bees are not working much on the buckwheat. It may be because they prefer the autumn flowers. If this is the explanation, we are glad of their preference, as we prefer the goldenrod to the buckwheat honey. A. J. COOK.

Agricultural College, Mich.

We are very glad indeed, friend Cook, to know that we are going to have some honey, even if it does come at the eleventh hour.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 168.—*I want to start an out-apiary, and will have to haul my bees back and forth, fall and spring. Would you advise me to adopt some device to space the frames at fixed distances, for the sake of security in hauling, and to make sure of exact spacing?*

I would.
Illinois. N. W. C. MRS. L. HARRISON.

I think it would pay you well to do so.
New York. C. G. M. DOOLITTLE.

Until I learn better I should advise you to do so.
New York. C. P. H. ELWOOD.

I am not authority, but I think not. How is this, Dr. Miller?
Michigan. C. A. J. COOK.

For this, as well as for several other reasons, I want my frames at fixed distances.
Illinois. N. C. J. A. GREEN.

I use small blocks between the frames at the bottom for moving short distances. The tops will usually stay in place. It is a very short job to block the frames perfectly secure.
Ohio. N. W. H. R. BOARDMAN.

If I were hauling my colonies I should take care to have my frames stationary. A device such as we use for shipping bees, placed on top of the frames, at the front and back, keeping them apart, is sufficient, and is easily put on and taken off.
Ohio. S. W. C. F. MUTH.

I have a horror of fixed frames, and therefore advise the questioner to do a pile of thinking about other devices first. Perhaps for that style of gipsy bee-keeping that keeps continually roving about, fixed frames may be best.
Ohio. N. W. E. E. HASTY.

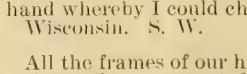
I would advise you to use my patented hive. There are two reasons why I might give such advice—one that I am dealing in them, and the other that I think it to be the best for the purpose you mention and every other. I leave you to decide from which I gather my inspiration.
Michigan. S. W. JAMES HEDDON.

I've used movable frames a quarter of a century, and they have always been *movable*. I never tried a fixed frame, and it seems to me I should feel hampered with them. Still, in hauling, a hive would be more movable if the frames were immovable. If a somewhat exact distance is required to avoid brace-combs, fixed distances may become a necessity.
Illinois. N. C. C. MILLER.

That depends upon whether you handle your combs and bees or not. If you manipulate your combs as I do, I answer, no, but have spacers to apply when hauling. But if you do not overhaul your bees occasionally it is well enough to have the combs at fixed distances, or, what would be as well, nail them down with 10-penny nails; or, what would be cheaper still, use old-fashioned box hives or log gums.
Vermont. N. W. A. E. MANUM.

That depends. If the frames are fastened to the quilt or honey-board by the bees, and you use a spring wagon, I should say no. If a wagon without springs is used, and six or eight inches of straw is placed under the hives, and care is exercised in driving, there will be no need of fastening the frames. I have taken them in the last way ten miles, and not a frame broke loose.
Ohio. N. W. A. B. MASON.

Yes, I would advise you to adopt (or, better yet, invent) some simple device for holding the suspended frame when moving; and if patented I should like an interest in it to the extent of one individual right, for it has been a great bother to me to fasten frames when moving. If I could have the Quinby closed-end in moving, and the Gallup after they were moved, I should be suited; but I don't know of any sleight-of-hand whereby I could change them at will.
Wisconsin. S. W. S. I. FREEBORN.

All the frames of our hives have a space-wire to keep them separated at the bottom, thus:  and as the arms of the suspended frames are glued to the rabbets, we haul our bees from one apiary to another, when necessary, without any other device, *in spring*. But we would not haul them in the fall, when the combs are full of honey, without fixing them by small wire nails half driven in the arms. See pages 167, 168, of our book.
Illinois. N. W. DADANT & SON.

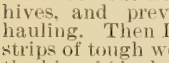
If it is necessary to haul bees to and from the out-apiary I should by all means adopt a close-fitting end frame of some kind. We are just moving an out-apiary in which half of the hives have closed-end frames, the others hanging. The closed-end frames can be prepared in a minute without opening the hive. The loose frame requires any amount of tinkering and waste of time. If loose frames are used I should certainly apply some of the many devices for keeping them at fixed distances. Any device

that is to be put into the hive and taken out again is a nuisance, and liable to get lost or broken.

New York. E. RAMBLER.

For a hanging frame we don't use any thing to keep the frames at fixed distances. Any device to keep the frames at fixed distances would necessitate a movable side to the hive. When we move bees in the L. frames, we lay a piece of our frame timber $\frac{3}{8}$ x $\frac{7}{8}$ flatwise across the ends of the frames, and drive 3 or 4 wire 4-penny nails down through the piece and the frame below, into the rabbets of the hive. That will hold the frames secure. Then confine the bees as you please, and go ahead.

Wisconsin. S. W. E. FRANCE.

No. I would secure with staples across the center of the bottom-board a piece of No. 12 wire, bent like a worm fence, or thus: This interferes but little in setting the frames in the hives, and prevents the swaying motion in hauling. Then I would keep a set of notched strips of tough wood the length of the width of the hive, ½ inch wide by ¾ inch deep, cutting the notches ½ inch deep; place these down on each end of the top-bars while hauling, thus:  Frames are thus spaced and stationary, but free when wanted so.

California. S. R. WILKIN.

I am surprised to note that so many recognize the *need* of something to hold the frames at fixed distances. It is true, in some localities, hanging frames can be hauled without fixing; but even then, the hives must be on springs or loose straw, and, worse than all, slow and careful driving is necessary. We have tried it, and know. Another thing, there are localities where hanging frames could not be hauled without fixing. See Notes of Travel at Elwood's, elsewhere in this number. If fixed frames, or, if you choose, closed-end frames, can be manipulated as rapidly and as easily as the hanging frame, why bother with the latter? Note particularly what Rambler says, and also what is said elsewhere, regarding the rapidity with which Elwood handles closed-end Quinby frames. E. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

MICHIGAN BEE-KEEPERS' STATE MEETING.

I wish early to call attention to the Michigan State Association, which holds its next meeting on New Year's day at the city of Detroit. It will be remembered that the Detroit meeting of the National Association was one of the best ever held. We propose that this next State meeting shall come well up to that grand one. We hold it on New Year's day so all can get half rates. We hope for a very large attendance from Ontario, New York, Ohio, Indiana, and other States. It is to be hoped that all will plan before hand to be on hand, and that the very poor honey season may not keep any one at home. A. J. COOK.

Lansing, Mich.

HOW TO GET RID OF DRONES.

We are having quite a honey-flow from what is commonly called "smartweed," which, by the way, as you doubtless know, makes the very finest honey. All of my 25 colonies are rushing out and in at a furious rate, with just one exception. From one hive but few bees have been going out and in, while a good many loafed around the entrance. The few that did go out to work went and came in a lazy, dragging fashion, quite in contrast with the busy rush from the other hives. Upon examination by lifting out a frame, I found that, while they had some sealed honey and a considerable amount of brood, the hive seems literally overrun with drones. I estimated the number at fully half the swarm. Now, what shall I do to get rid of these fellows, as they will undoubtedly eat up the whole store and leave the colony destitute?

I wintered 11 colonies last winter, and increased this season to 25 by natural swarming. They have made no surplus yet; but I think, with the exception of three or four late swarms, they will be in excellent condition for winter. The honey-flow will probably continue here three weeks, or till about the middle of September, so I may get some surplus yet.

Waterman, Ind., Aug. 25. M. STURM.

Your queen is evidently a drone-layer. Replace her and trap out by perforated zinc the surplus of drones.

THE ROCKY MOUNTAIN BEE-PLANT—A REPORT FROM ITS NATIVE HOME.

Friend Root:—I address you thus familiarly because of the friendly way you have of talking in your A B C book, which came promptly to hand, together with 25 cts. returned, on account of clubbing with GLEANINGS. This was altogether unexpected. Is the inclosed sample of our most productive honey-plants in this vicinity the spider-plant, illustrated on page 253 of said book? You will see that it differs somewhat, as this has only three leaves on a stem, and the seed-pods all hang down, even when very small; and instead of the flowers opening about sunset they are open all day and covered with bees the whole day long; and instead of from 12 to 20 flower-stalks to each plant, I should say from one to two hundred. The small stalk that I picked this sample from had 57 more like it, and is only about two feet high, while there are thousands of them from five to six feet high on high ground, with no water. There is one peculiarity about the plant that you do not mention, which makes me think that they are not identical. This plant with us is something like the bee, being very *sensitive*. If let alone or handled *very* gently it is all right; but if you strike it a blow, or kick, or handle roughly, it instantly gives out a very strong and disagreeable odor—that is, the stalk and leaves, but not the blossoms. Its thriving so well on all kinds of soil, by the roadside or on hard dry clay, and with no water, makes it *the* honey-producer of this vicinity, at this season of the year, for it is always ready, whether the alfalfa crop is in bloom or has been cut and stacked.

If I can give you any further information concerning this Rocky Mountain country I shall be happy to do so in my humble way.

HOMER BROWN.

Taylorville, Utah, Aug. 30, 1890.

Friend B., the plant you send is not the spider-plant, as you suppose, but only a near relative. The spider-plant is *Cleoma integrifolia*, while this is the Rocky Mountain bee-plant, or *Cleoma pungens*. The flower of the spider-

plant is very much larger; besides it differs in other ways. As they so strikingly resemble each other they are often confused. While the spider-plant bears transplanting as well as a tomato, the Rocky Mountain bee-plant is very touchy, and it must be handled in transplanting with the greatest care, or it droops and dies at once. I have before noticed the sensitive peculiarity you bring out so vividly. It seems to be one of the high-toned plants. Prof. Cook has already tested it as a honey-plant by the acre; but it does not take as kindly to our soil and locality as it does with you. We shall be glad of any information as to the quality and quantity of honey it produces in its native wild. Some of the seed-catalogues have been giving it an undeserved boom, under another name.

ASAFETIDA TO STOP ROBBER BEES.

I have used it two or three seasons, and find it good, that is, on colonies that rob through a poor honey-flow. They go in and out without being detected. I had one colony that was going it strong this season; but after a 5-cent cake of asafetida had been on their bottom-board 12 hours they were challenged as soon as they entered a hive; and as they could not give the password they were soon ejected or killed. Their perfumery gave them away.

SAMUEL HEATH.

Tidal, Pa., Aug. 23, 1890.

I am not surprised at the result of your experiment, friend H. Asafetida has so pronounced an odor that it enabled the bees to tell their friends from their enemies without trying very hard.

HONEY FROM THE COTTON-PLANT.

I have been out peddling honey to-day. I sold $27.00 worth at 11 cts. I send you a small sample of it. The sample is cotton honey; that is, it is from that source. In examining your A B C in regard to honey-plants you say nothing about honey from cotton. My bees made 2 lbs. per day for two weeks from cotton. I could give you an idea as to all of our honey-plants, but probably with no interest to you. I shall get about 20 lbs. of surplus, on an average, from my bees.

J. F. TEEL.

Elmont, Texas, Aug. 15, 1890.

The sample of honey received compares favorably with clover honey, both in flavor and color, and is much above the average quality of southern honey.

TOMATO JUICE FOR PROPOLIS.

There is one thing I have just discovered that I never knew before, and that by accident. I had been taking off honey, and had my hands well stuck up with propolis. As I had some tomatoes that needed fixing up I got some of the juice of the vines on my hands. When I came to wash, and rub soap on my hands, the propolis came off in a hurry. If I had known that years ago it would have saved me much trouble.

JAPANESE BUCKWHEAT FOR HONEY COMPARED WITH COMMON.

I wish to write a word about buckwheat, as this is a buckwheat section. Last year there was some of the Japanese buckwheat sown for the first time near here. To-day I thought I would examine and see how the bees were working. I looked at a piece that had Japanese and the common buckwheat, both sown in the lot side by side. The day was good, and the buckwheat was fresh and nice. I think by the looks that there were ten bees on the common to one on the Japanese. How is it in your section?

BEN FRANKLIN.

Franklinton, N. Y., Aug. 25, 1890.

Friend F., your valuable fact reminds me that, when a boy, we discoved that tomato-juice would remove butternut stains and gummy matter from the hands. There must be a peculiar acid about the tomato that makes it a solvent for certain gums.—Your report in regard to buckwheat is only accidental.

WON'T HAVE TO FEED.

A drouth that lasted for seven weeks ended July 20th here; since then we have had plenty of rain, and the vegetation and flowers have returned like spring. Bees here have been doing nicely since the drouth. They have filled their brood-chambers to running over, and the supers have caught lots of it. I took off the supers that were full about a month ago, and supposed the season to be over as usual; but the bees refused to stop storing, and went up under the covers; and before I found them at it they had built several pounds of honey in some of the hives. I put the T supers on, and the bees seem to be happy. The honey this year is mixed with honey-dew, but the bees winter nicely on it here, and it will save feeding—a thing I have had to do for several years.

S. S. LAWING.

Henderson, Mo., Aug. 28, 1890.

Friend L., you also point a good moral. Keep an eye on your bees, and see what they are about; even if they haven't done a thing for weeks, they need watching all the same.

THE HOT WAVE IN CALIFORNIA.

In my last statistical report, dated July 25, I stated that the prospect for an average crop was excellent. The hot wave had then just reached us, but I did not at the time suspect its ultimate effect. A few days after, the honey-flow stopped; and although the alfalfa has been in bloom during the whole of August, not a pound has been stored since the first week of this month. The bees seem to be getting barely enough for their own use. My scales have lost a trifle in weight. The crop will, therefore, be considerably shorter than expected. Much of the honey is dark, presumably from buckwheat-brush, gathered between the first and second blooming of the alfalfa.

WM. MUTH-RASMUSSEN.

Independence, Cal., Aug. 29.

ITALIANS PULLING THROUGH WHERE BLACKS STARVE.

Many neighbors in the Osage River region lost nearly half their swarms (blacks) from starvation and moths during the July and August drouth. Now that smartweed (or lady-finger) and Spanish needle are coming into bloom, the surviving swarms are doing well. The swarms lost were in old-fashioned box hives, without frames. The few swarms I have (Italians) in Simplicity hives, pulled through the drouth nicely on a local supply of late-blooming sumac and buckbush. They are just now making most of their honey from Japanese buckwheat bloom.

LUCIUS GOSS.

Connely, Mo., Sept. 1.

REPORTS DISCOURAGING.

HONEY CROP A FAILURE IN NEBRASKA.

The honey crop in this county is an entire failure. All bees here will have to be fed for winter. H. C. ALLEN.
Rising City, Neb., Aug. 9, 1890.

HONEY CROP WILL BE VERY SMALL.

The honey crop here is going to be very small, as the clover and basswood are gone, and no surplus up to this date. But little buckwheat raised around here. LEWIS H. KNUDSON.
St. Ansgar, Ia., Aug. 4.

ONLY 125 LBS. FROM 35 STOCKS.

Put me down among the Reports Discouraging—125 lbs. of honey from 35 stands, and some of them in poor shape for winter. I will not quit for one crop like that. It would take two or three like it. P. C. CHADWICK.
Loring, Kas., Sept. 7.

A POOR SEASON; 10 LBS. PER COLONY.

This has been a poor year for bees. They have not increased much, and some not any, and the honey is in about the same proportion. I think it will average 10 lbs. per colony, and the increase was about one in 10 all through the county. A. E. BRADFORD.
Hammond, Wis., Aug. 8.

BEES HAVE DONE POORLY ALL THE SEASON.

Bees have done poorly all the season, barely making a good living. They killed off their drones in June, and there was no swarming to amount to any thing. I had four colonies in the spring; and of these, two cast two swarms each, making four all told. Two haven't swarmed yet. W. J. MCADAMS.
Western, Neb., Aug. 28.

POOR FOR IOWA.

This has been our poorest season for honey so far for four years. Since basswood, bees have hardly made a living. We have so far taken about 5 or 6 cwt. of comb and 45 gals. of extracted honey. But as the old adage says, "It is an ill wind that blows nobody good." What little honey there is will bring a better price.
E. R. A. BRAINARD.
Postville, Ia., Aug. 12, 1890.

POOR SEASON; RECORD OF SCALE HIVE.

This has been a poor season for bees in this section. I have a scale hive which gained, June 6 to July 16, 20 lbs.; July 16 to 26, it went back 5 lbs. Our only hope now is buckwheat, of which there is a great amount. The earliest pieces are already in full bloom. Not one swarm in ten threw off new ones. I wintered 18, and got only one. The new hives may be useful next year. L. M. CARPENTER.
Blooming Valley, Pa., July 27.

POOR CROP IN KANSAS.

GLEANINGS comes regularly, and I can say it does not come too often for me. I have received many good hints from it. It has been so dry in this part of Kansas this year that the bees will have hard work to lay by their winter stores. I have taken 4½ lbs. of comb honey from one hive, and that is all I expect to get this year. The pound of bees and the queen we purchased of you in May are now a strong colony; and if it had been a good honey season we might have had two or three colonies more just as strong.
Burlingame, Kan. ERNEST G. TERRY.

LAST YEAR, 3000 LBS.; THIS YEAR, ONLY 200 LBS. OF HONEY.

I had 3000 lbs. of honey last year, but this year it looked favorable in the spring up till the middle of June. Since then it has been very dry. I have taken only 200 lbs. so far.
Brighton, Ia., Aug. 9. W. A. SHAFNIT.

HONEY SEASON SHORT.

The summer honey season is over, and a very short one it was. I had 13 colonies, spring count, and have extracted 300 lbs., and increased to 28 by dividing. I haven't had a swarm this year. My bees are good and strong, and we hope to get a good fall crop. J. H. HILL.
Venice, Fla., Aug. 25.

POOR HONEY SEASON; BLACKS BETTER THAN ITALIANS.

This is a very poor honey season. Bees have not swarmed in some places, and have not even gone up into the upper hives. My blacks have done better than Italians this year. I noticed in June there was a great slaughter among the drones, which will teach us hereafter what the harvest will or ought to be.
Peosta, Ia., Aug. 6. MRS. J. H. ALLISON.

SHORT CROP, BUT 20 LBS. PER COLONY.

My sections came in time for the basswood flow, which was late. It commenced July 20th, and lasted for three weeks. The flow was very light, about 20 lbs. per colony. There was no surplus honey from clover in this vicinity this year. The prospect of a fall flow is good if the weather holds favorable. As there seems to be a shortage all over the country, those who have a little will probably receive a good price. FRANK DURAND.
Esdaile, Wis., Aug. 11.

CLOVER AND BASSWOOD POOR, BUT SUMAC GOOD; SCALE HIVE; 7½ LBS. PER DAY.

The honey crop is rather light. There was and is the most white clover I ever saw, and the fewest bees on it. Basswood did not blossom much, and yielded scarcely any honey. The only plant that seemed to give a full crop was sumac, and 7½ lbs. per day has been the best done by the swarm on the scales (extracting) this year. My best hive (Italian), which was run for comb honey, has filled 120 sections, 4¼x4¼x1 15/16. Another has filled 72, and are at work on 24 more, while about a dozen hives have done nothing in the sections. I have seen but 5 new swarms from my 50 hives. Buckwheat is in bloom, and bees are killing their drones. Too dry. C. G. DARLING.
Lincklaen, N. Y., Aug. 8.

EXPECTS TO FEED; BLACKS DWINDLED WORSE THAN ITALIANS.

As our season for surplus is past, I send you a short report. Our honey crop is a total failure. We have taken only about 15 gallons of orange-blossom honey from 45 colonies, spring count, with an increase of about 50 per cent. Our colonies have dwindled very badly the past two months—blacks more than the Italians. Some stopped breeding altogether. No more blacks for me. I expect to have to feed all my colonies an average of 10 lbs. each to carry them over until October, when our fall flow comes. This is somewhat discouraging. But I have not lost my faith in the business. I am at work now getting out hives, supers, etc., preparing to start two out-apiaries another spring. I believe in having every thing ready before it is wanted. I have had some experience in this line the past season. ARTHUR F. BROWN.
Huntington, Fla., Aug. 8.

HONEY CROP EXCELLENT.

The honey crop is excellent in quality, and fair in quantity. From 54 stocks I have extracted about 2500 lbs. I have not had a large yield since 1878. Clover is a failure nearly every year, and basswood is largely cut off for lumber.

Kennedy, N. Y., Aug. 11. W. H. S. GROUT.

SEVIER CO., UTAH, A GOOD LOCALITY FOR BEES.

Our honey-flow commences about June 15th, and ends Sept. 15th. The average yield is about 150 lbs. of honey to each colony, and 100 per cent increase of bees. At times we have more increase of bees and less honey.

Elsinore, Utah, July 28. N. B. BALDWIN.

A BIG HONEY YIELD THIS SEASON IN TENNESSEE.

We have had a big honey yield this season. I find in some of my hives (and it has continued so for many months) many bees almost perfectly black, and others almost pure Italians, seemingly the progeny of the same queen. Is not this contrary to theory? JAMES A. LYON.

Clarksville, Tenn., Sept. 4.

No; hybrids are often marked that way.

A GOOD YIELD FROM BASSWOOD AND CLOVER.

In this locality my bees have had plenty of clover and basswood to work upon; four swarms have stored, in 2-lb. sections, 260 lbs. This I took off at the end of the basswood flow. They are now at work upon buckwheat. Only one increase from these four swarms.

Union City, Mich., Aug. 29. S. D. BUELL.

A SMALL CROP, BUT THE HONEY GOES OFF LIKE HOT CAKES.

This has not been an extra year in honey. Our crop was about 600 lbs. from 60 colonies, but some of them were so weak in the spring that they gave no surplus at all. It is beautiful honey, and goes off like hot cakes—no trouble to sell this year. We had only six or seven swarms. We do not expect to get any surplus this fall, as buckwheat will be a poor crop.

BELL L. DUNCAN.

Black Lick, Pa., Aug. 21.

MERCER'S SCALE-HIVE REPORT FOR 1890.

Inclosed you will find a report of my scale hive. This is the same one that was on the scales last year, with the same queen. It did not swarm, neither had it any help from any other hive. After June 12 they continued to gatherfrom ½ to 2 lbs. per day for about one month. The hive weighed, when taken off the scales, July 20, 115 lbs. It is an ordinary 8-frame L. hive, with supers, each holding 7 frames. L. E. MERCER.

APRIL.	GAIN IN POUNDS.	MAY.	GAIN IN POUNDS.
15	2	15	12
16	4¾	16	16
17	1	17	18
18	0	18	10¾
19	½	19	7½
20	0	20	6¾
21	1	21	Fog—ext'd 65 lbs.
22	4	22	8½
23	4	23	13½
24	4	24	10
25	7½	25	10
26	4½	26	4—fog.
27	7	27	0—fog.
28	6	28	0—fog
29	Cold, foggy. Loss 1½	29	7½
30	Cold, foggy. Loss 1	30	8
MAY.		31	3½
1	5½	JUNE.	
2	6⅛	1	7½
3	8	2	6¾
4	6—ext'd 56½ lbs.	3	7½
5	10	4	9
6	Fog. Loss 1	5	10—east wind.
7	Loss 1½	6	5
8	5½	7	2
9	0	8	4
10	3½	9	4
11	11	10	4½—ext'd 59 lbs.
12	12	11	2
13	16½	12	¾
14	12—ext'd 68 lbs.		

Total, 351 lbs.

Friend B., the only reason I can give is, that the weather was cold, or else the pasturage was not very good.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

USING CLOTH IN PLACE OF GLASS FOR HOT-BEDS, COLD-FRAMES, ETC.

A good many are making inquiries in regard to this matter, and they come to me, as I have had experience. At present we have only one bed covered with cloth; and if the money we have expended in cloth frames had been put in glass sash I should have been very much better pleased. They answer very well in the fall and spring to keep off frost, but for the snows of winter they do not answer at all. Suppose your cloth frames are covered with six inches of snow, converted into slush with a drenching rain. Under such circumstances the glass keeps its place all right, and is not harmed by the wet or dampness; but the cloth is soon made useless. Another thing, the cloth frames blow around unless fastened down, and this one thing has disgusted me with them. It is true, I might make them as heavy as one of the glass frames; but if I am going to do that, I think I should put in glass and have something substantial, and good for a lifetime, if properly taken care of. It is true, cloth frames are light to handle, and can be cheaply made, but they do not begin to keep out frost like tight, well-made sash. I have thought several times of having a cold-frame on the south side of some building, then have a cloth frame hinged on the north side, so it can be raised up and fastened against the building. This would keep it from blowing away, when they are down over the plants, or fastened up against the building, and might answer a very good purpose in the spring and fall.

One friend asks if there is any thing new that I have learned about greenhouses. Not much, unless it be this: We want a greenhouse so as to get every bit of sunshine possible. It should have a locality where neither trees nor buildings are going to obstruct the rays of the sun in the winter time. After we have secured every particle of sunshine possible, from sunrise to sunset, then I would make provision for securing the rains from above. Removing the sash, and letting the gentle rain come right down on the plants, is the best remedy that I know of for insects or disease. Besides this, if we wish

to push things in the winter time, of course we want to keep them warm. For this purpose I am rather inclined to steam-pipes. Somebody asks how flat it will do to have the glass. In hotbeds and cold-frames the sash are often so near level that there is only just incline enough for the water to run off. This is bad, however, late in the spring, when the sun comes nearly straight down, for the heat at noonday is tremendous if you forget to move the sash or open the ventilators. Houses running north and south, with pitch enough to the roof so the sun's rays can pretty nearly go straight through, morning and evening, give better results. In this case, when the heat is most intense about noon, the rays strike the glass at an angle. This equalizes the heat, giving us most of the sun's power morning and evening, and less at noon time. A more perfect arrangement would be to have one side of the house fronting the southeast, so the sun would shine straight through the glass, say at eight or nine o'clock in the morning; then have another side fronting the *southwest*, so as to have the same condition at three or four in the afternoon, and we should have it. Now, if these two sashes can be arranged so as to swing clear off against a couple of posts, to catch the rain whenever it comes, it would be my ideal of a greenhouse. A roof nearly flat saves glass; for the same number of square feet of glass will cover more square feet of plant-beds on a level, or nearly level, than any other way.

MOSS FOR PACKING PLANTS, COVERING SEEDS, ETC.

Friend Root:—If you are in want of moss, or should be any time in the future, write me for prices, as I think I can do better by you than heretofore; or I will refer you to other parties whom I have encouraged to gather a supply, thinking it would sell, thereby helping the party to add to his not over-large income. I have (of course) a desire to gather *money* when the opportunity offers, but I can be charitable only on a small scale, because of my circumstances; but I will do what I can.

Krumroy, O., Sept. 8. C. H. WELCH.

The above comes from a friend who furnishes us our moss for packing strawberry-plants, covering seeds, and other work in gardening. We purchased 40 barrels of him last spring, and it answers the purpose the best of any thing we ever got hold of. Now, my reasons for publishing the above letter are to call attention to the fact that this moss may be found in many swamps and marshes, and should be utilized. It has been advertised in some of our seed catalogues as high as 50 cents a peck. As it can, however, be compressed into a very small space, it seems hardly fair to sell it by the peck or bushel; and as it usually contains more or less moisture, it can not well be sold by the pound. I would suggest, however, that, in order to save transportation charges, it be dried in the sun. It may then be sent cheaply by mail, freight, or express. The purchaser can moisten it to his liking. A pound of perfectly dried moss will go a great way, and makes quite a bulk; but in order to let you see what it looks like, and to start a traffic, we will offer it until further notice, at 5 cents per lb. If wanted by mail, add 16 cents for postage. Very likely some one can undersell me. In fact, I should like to see the price go down to a cent a pound or less. But in our competition we should be careful to send a good clean article. Some time ago I purchased several barrels of peat and moss from Barnegat Moss Co., Barnegat, N. J. It was raked up without any sifting or sorting, some of the barrels even containing sticks a foot long. I wrote them, remonstrating; but all the satisfaction I received was that they sent me just such as they sent to everybody else. I notice that Mr. E. L. Roser, of Brittain, Summit Co., O., at the end of his strawberry circular, advertises it by the barrel for $1.10. It is not only valuable to plant-raisers, but where it is very plentiful it is the nicest thing for bedding horses ever discovered, as it absorbs all the liquid manure, and the resulting compost is the nicest thing for greenhouses or plant-gardens that can be imagined. You can work it all up fine, and mix it with the dirt without any fermenting, or rotting at all. Our friend Eugene Davis, who gave us the Grand Rapids lettuce, says there is nothing better for raising lettuce in greenhouses than fresh horse manure broken up fine, and raked into the soil. Now to start this moss industry going, we will, in our next issue, give the names and addresses *free* of all those who are prepared to furnish *dried* moss at 5 cents per lb., and damp moss at a dollar a barrel, or less prices if they choose.

PLANTING STRAWBERRIES IN THE FALL.

Bro. Root:—One of your advertisers says: "Now is the time to set strawberries for next year's fruiting." Fiddlesticks! Everybody who makes a business of raising strawberries for market knows better than to set the plants in September for next year's crop; but those who have had no experience may be misled by such statements. Of course, if anybody wants to set a few plants in the garden by way of experiment, or simply for amusement or recreation, there is not much harm done; but it is not right, according to my way of thinking, to induce people to plant strawberries in the fall, with the expectation of marketing a paying crop the following season.

I could furnish you a nice lot of Haverland plants; but as my experience would not justify me in planting so late in the season, I will not sell any plants for fall planting, even if our honey crop is a total failure, and I must wear my old coat a year longer. S. P. YODER.

East Lewistown, O., Sept. 8.

Friend Y., you are, in the main, right. A person with little experience in strawberry culture certainly should not set out a very large extent of ground at *any* time of the year, unless he has some old hand to guide him. Of course, there may be exceptions, but this is the rule. Notwithstanding this, however, a skillful and experienced market-gardener can put out half an acre in August or even September, and get a partial crop next season. By the aid of the transplanting-tubes, if he has the plants on his own premises, or, say, if he can get them a few miles from his home, so he can go after them with a wagon, he can put them out in September or October, and have almost every

plant live. Of course, where we set out plants as late as October, they are to be treated as spring-set plants. The principal advantage will be, that you can do it oftentimes when you have more leisure. Another thing, there will then be no difficulty about getting in your plants early enough. We have put out strawberry-plants by taking up a lump of dirt with them, when we could not go to work in the morning because the ground was frozen. Toward noon it would soften up enough so that we could dig so as to put the plants in. These plants bore *some* fruit next year. I do not think we can too strongly emphasize the advice given, of starting small and enlarging as you acquire experience. The beginner will very soon know what he can do, without asking anybody. He should, however, avail himself as much as possible of the experience of others around him. But as soils, localities, and circumstances always differ, there is nothing like getting acquainted with your own surroundings. The earnest worker will soon get all these things under his thumb, as it were. We received 2500 Haverlands about ten days ago. Most of them were put in our plant-beds, about six inches apart. We shall not use them to fill orders until they have made new roots and new foliage, and are nice strong plants. The most of the plants that we are selling and putting up now are in lots of from 25 to 50. We get a few orders for a hundred; but the great bulk of our business in plants is for lots of ten—sometimes only five; that is, ten plants of each kind of all we raise, making forty in all. These, of course, are for garden culture, and probably few if any of our readers will make a failure in this line. Next season they will have plants of their own raising, to put in the field if they like.

Later.—Since the above was written, our boys have put out a strawberry-patch for my daughter, Mrs. Calvert, and another for my wife's sister, Mrs. Harrington. They were put out Saturday, Sept. 6. As I was very busy I did not superintend the work at all. The boys took them out of our plant-beds, and carried them across the road, and put them in mellow soil prepared according to my direction. They did not even use the transplanting-tubes. To-day, September 15, just nine days after, every plant out of the 600 (they had 300 apiece) is growing, and many of them are putting out runners. They look as fresh and bright, apparently, as those that have not been moved at all. Of course, we have had a very wet rainy spell; but such spells frequently happen in September. Now, these two strawberry-patches are going to bear a pretty good crop next season. I am sure of it, because I have had berries from plants set in September, more or less, every year for the past five or six years. One reason why we prefer to put out the plants in the fall is because we have much more time and ground to spare, and better facilities for putting the ground in excellent trim.

MOSS FROM THE SWAMPS FOR WINTER PACKING.

I send you a sample of moss. I have been using it for packing over my bees for three winters. I think it is a good material for that purpose. It is to be found here in Northern Iowa in quite large quantities in the sloughs, or "prairie ponds," and can be gathered in the fall of the year when very dry, and the water is all dried up from the ponds. It is found lying on the surface of the pond in a solid mat, I should say from two to four inches thick, and it can be gathered up with a pitchfork very easily. Understand, I have none of this moss to sell, but I think it could be gathered and shipped to dealers or to parties who wish to try it. This sample I send you is just as it grew on the pond, about two or three inches thick. It does not mold or mildew. I have some in my cellar, which I have had for three years, just as bright as it ever was. Bees have done poorly in this part of the country. I started this spring with 65 colonies. I got two swarms, but no surplus honey. It has been very dry this summer, but we have had plenty of rain of late.

Ackley, Ia., Sept. 5. N. YOUNG.

Friend Y., I feel sure the moss you send will answer splendidly. It was several years ago mentioned as being used for packing chaff hives. The sample you send is not exactly like what we use for packing strawberry-plants, but I think it would answer exactly for the purpose. See what friend Welch has to say on the preceding page.

THE BUSH LIMA BEANS, ETC.

At present we are selling shelled beans on our wagon as follows: White kidney, 5 cts. per pint; bush lima, 10 cts. per pint; and pole limas, 15 cts. per pint. There is not, however, quite so much difference as this in quality. The kidneys were put on the market long before the others, and people had become a little tired of them when the bush limas first came. Then they got a little tired of the bush limas, so that, when the great whoppers—the King of the Garden limas—came they were a novelty; besides, their enormous size made everybody want them. The bush limas are fully two weeks earlier than the pole limas. The Kumerle and Burpee's bush limas are none of them yet large enough for table use. I am inclined to think that the large bush limas will always be later than the *pole* limas (at least during a damp season, when they need more sun), and this is going to be rather against them. Our first bush limas brought 15 cts. per pint, but it was a pretty hard matter to sell many at that price. The King of the Garden has been selling at this figure for a week, all we could pick, and they never bring any back on the wagon. Had the ground not been so exceedingly wet, our Kumerles and Burpees would have been planted rather earlier. Last year the Kumerles were planted rather too early; but this year I fear I planted them rather too late. Although we have quite a little plot of Kumerles, I fear none of them will be mature enough to plant unless we pull the vines as we did last year, and let them ripen in the greenhouse.

SEEDS THAT CAN BE PLANTED IN SEPTEMBER IN THE OPEN GROUND.

First, cabbages, for setting in cold-frames later; Grand Rapids and Boston Market lettuce for the same purpose; winter onion-sets if you have not before; the same with spinach. In fact, it is a good plan to sow a lot of spinach once a week all through September. So much depends on the winter it will be hard to tell just what sowing will winter best.

OUR HOMES.

For I will give you a mouth of wisdom, which all your adversaries shall not be able to gainsay nor resist.—LUKE 21: 15.

A good deal has been said about the uncertainty of things pertaining to the life beyond. Unbelievers boldly challenge us to prove what we claim and believe; and as God has not seen fit to tell us very much about this unknown world beyond, we can not always answer their questions. In fact, I have often thought it just as well *not* to say very much. Then the question arises, "Have we, after all, any well-defined faith or sure grounds for believing there is a hereafter at all?" The text before us this rainy morning (at least it is a rainy morning here in Medina), however, gives us the promise that we shall be supplied with wisdom sufficient to answer all our adversaries, and that they shall not be able to gainsay nor resist the truth we shall be able to present to them. And now, dear friends, I have chosen this text for our talk to-day, because I feel that I have something in my possession that none of you will be able to gainsay nor resist. I do not mean in the way of argument, for it is too sacred and solemn a thing to argue about. But I feel in my heart that you will not *want* to gainsay nor resist what I have to present before you. Most of you are my personal friends; and even if you are not, I am sure you are open to reason and justice.

We have been having quite rainy weather. From reports, I judge that it has been rainy almost everywhere. We are so much in the habit of expecting a drouth during the last of August and first of September that it seems a little funny to find the ground so wet that one can scarcely step on it, and to long for sunshine as we often do in January and February. It has been raining more or less every day for a week; and after it rained steadily for so long, and we felt pretty sure that it was going to let up, it just turned in and rained harder and harder. I was up in the morning before it was quite daylight, as usual. Notwithstanding the rain, I looked over all the buildings, outdoors and in, to see if the water was doing any damage. Although we are up above low ground, we have had considerable trouble at different times by water coming into our basements; and in our efforts to carry the water away, sewer-pipes and tile have been laid so thickly under our grounds that one can hardly dig anywhere without striking them. In the progress of our new building, many of these old outlets for water are turned up; and as it was during the month of August, no one expected water enough to do harm, even if they were not just then properly connected again. Well, I went around into all the basements, and had the satisfaction of finding them all dry, sweet, and clean. No rush of waters pouring in greeted my ears or eyes. We have had in times past so much of this kind of work—water covering the basement floors, damaging goods, setting things floating, etc., and then leaving a disagreeable, damp, moldy, musty smell for weeks afterward that I had got pretty thoroughly roused up about it. As an illustration of some of my trials, let me relate a little circumstance.

I think it was in the month of June. After dinner my wife passed down through the wax-room and out through the machine-shop. A very heavy thunder-shower was under way, and she came rushing to me a good deal out of patience. She said the water was pouring into the door of the machine-shop like a small mill-race, and half a dozen men were standing around, laughing to see it come in. I was down there in no time, and gave them some pretty sharp reproof about not stirring themselves when they saw the damage to property that was going on. Some of them excused themselves by saying that they did not work in that room—they were only passing through after dinner. Others said they did not know what to do.

"Here! follow me," said I. Shovels and pickax were right in sight. There had been some changes made in the railroad track in front of the door, allowing the water that came down the ditch to come straight into the door instead of following its accustomed channel. With my hands and such tools as I could grasp hastily I commenced damming up the water. With three or four to assist me, in less than five minutes the water was stopped, and turned where it ought to go. Then with scoop-shovels and sawdust from the adjoining room we had the water removed. But the floor was soaked, and a good deal of water had got under it; and it is not at all strange, that, soon after, the Health Commission pronounced that apartment unwholesome. You can readily understand from the above why it is that I become pretty vehement when anybody by heedlessness lets water into any of the lower rooms. Please let us now go back to the morning in question.

I felt happy to think that every thing was safe and sound. I assisted in getting the market-wagon off, and then went to breakfast. After breakfast it began to rain still harder, and I discovered that a large reservoir we are making to supply a steam-pump for fire purposes had caved in on one side, and the outlet was stopped. When the workmen were digging the reservoir, I was assured that the water-conductor from the roof of the saw-room was securely fixed so as to carry away any water in case of rain. And not only was the outlet stopped, but the horses had evidently backed the wagon against this temporary water-pipe, and it was thrown out of place. The water from the roof of the large factory was pouring into the reservoir, endangering the walls that supported our steam-boilers. At such a time I generally fix my mind on some special man who knows how to do the work under consideration. My special man had not come, and, in fact, nobody was around who would be of any particular use in such an emergency. It wanted somebody with rubber boots and waterproof coat. I soon found one man to help me; but before the outlet was opened, the rain became so severe that it was filling up the cellar of the new building also. Finally, to my great relief, one of the men I wanted came around quite leisurely, asking me if there was something I wanted him to do. I felt provoked that he should ask such a question. But I kept the feeling down, and pleasantly told him what was wanted. Before the passage was fairly opened here, I found that the water was going into the basement of the *saw-room* building. It was the old story over again. A big stream was pouring in, and the baskets and other things were beginning to float about. I felt as if I could *not* have this floor soaked up with water again. I could not wait for rubber boots nor for rubber coat; in fact, I do not often have such things of my own, because I lend them to somebody before I have had them a week. I found a couple of men, and gave them some shovels, and told them to stop the water from going into the basement.

"Well, how shall we stop it?"

"Cut a little ditch hastily, and carry it along outside, instead of letting it run *toward* the building."

"But we can't make water run *up hill*," remarked one, by way of objection, while he stood still with his shovel, out in the rain.

"Yes, we *can* make water run up hill, if you will do exactly as I tell you," said I. Then the other one objected that it was all loose chips and sticks, and said the water would all run through it if used to make a dam. Oh! why couldn't these friends in this emergency, when the water was pouring into our basement, have a little more confidence in my wisdom and judgment? Why did they not reflect that I should never have had charge of all this property and these buildings had my judgment not been at least *tolerably* good? I did not say any thing, but went out and took hold of the tools myself, and showed the one who said that water would not run up hill, that, by raising the embankment high enough, we could make it fill the depression and go over the higher parts. The one who said sticks and chips would not stop water was directed to take some soft mud out of the road and plaster the sticks and chips until they would hold water. Mud was in great plenty, and as soft as butter; and it did not take two minutes to "butter" over the porous material so it carried water nicely, and in five minutes more we had a big muddy stream going off beyond the building to a place of safety. How much can be done with a hoe and spade and shovel, in a crisis like this, if you only have a man who is expert in their use! I love tools; and I especially love hoes and spades and shovels. I love the man who is expert in their use; and I have sometimes felt like raising my hat in respect to the man who knows how to handle and is an expert with a spade. Why, the minute he takes hold of one I can tell whether or not he knows what a spade is for. I ran down into the basement, and was rejoiced to see the water had every bit stopped. Then we rushed over to the new building, and found the same state of affairs there. The water was going down the open hatchway like a small millrace. I called for some more hands to make a dam and carry it off. It was just as before—they stood out in the rain and objected, not doing any thing until I grasped the hoe and showed them how. One man said we should have to dig down *three feet* to keep the water from running into the building. I presume they forgot I had played with water almost all my life, and that I had watched irrigating ditches along the sides of the mountains in California and Arizona with an intense interest that ordinary people know but little about. I know pretty well what can be done with water. In less than one minute a great part of the flood that was going into the hatchway was turned off over the ground. Of course, it very quickly made a little pond there; but that was a better place for a little pond than around the foundation stones of the new building. In fact, the water was a foot deep there already. The rain was so great that the ordinary outlets were insufficient, especially while shavings and sticks were obstructing them. Well, before this little pond had got over its environments, back to the building again, a little ditch was hastily made where it seemed most inclined to break over, and in ten minutes we got it away from the building, and in no spot did we dig more than six inches. The outlet of the reservoir had by this time caved in again, and that was rapidly filling. The man who opened it the first time, and who knew just how, could not be found, so another one had to be instructed where to find the tile, and how to manage so as to prevent the mud from being washed into it. Just then I remembered the printers were on the last page of the strawberry book, and, in fact, it was already on the press. I had been in the office once or twice to see about it; but owing to the excessive rain, nobody had yet come around to whom I could give orders. When I did remember it, it worried me a little. Sure enough, in some way the impression had got out that I was through with my corrections, and it was in the press, and several hundred impressions had been run off. I had kept level until about this time, and then I fear I scolded some. There was nothing amiss, however, except some omissions in a part of the index; and if you find that a part of it is a little out of "whack," as some friend expressed it, you will know how it came about. The press was stopped, and I sat down to finish the page where I left off the night before. The water was dripping from me all over, and running away down into my shoes. In fact, my hat was so soaked that the water kept running down my cheeks and running from the end of my nose on to the strawberry book I was trying to read, until I pulled my hat off, and then the draft was too severe on my bald head. I got the page finished, however, and went back to look after the water. One of the men I wanted could not be found anywhere. At last he turned up away down across the creek, letting the water off from the *celery*. When asked how he came to go off there, he said it was because I told him to. After we got the water stopped from going into the basement, I told him to help let the water off from the *cellar* of the new building. I suppose I stopped at the word "cellar," so many things were crowding me all at once, and he said he understood me to say "celery," and so put away off to the creek bottom (with his rubber boots and coat), where almost the whole ground was submerged. If there is any thing that will bear unlimited quantities of water without injury, it is celery.

I have for some months rather held back and objected to the new improvements that have been started. I wanted to have the new building put off till another year. The reservoir, with its attendant steam-pump, I objected to also. One reason why I objected to it was, I knew it must bring added responsibilities which I did not feel able to bear. But the boys, in their enthusiasm, explained that these things were urgently needed, and will be an excellent investment. If we are going to have them, the sooner the better. They propose to take the responsibility off from my shoulders—at least a part of it, and look after things. I presume this rainy morning must have been a good time to sleep—at least, nobody seemed to be in much haste in getting around, and it is not to be wondered at that I became a little cross and impatient. I did not say much out loud, but I declared mentally that things had got to come to a standstill until we could get ready to do every thing "decently and in order." (The last is Bible teaching, but you know Satan can quote Bible tiptop.) I did not realize that I was getting into a bad and unchristianlike frame of mind. A little incident, however, reminded me of it. Somebody came along quite leisurely, and pleasantly wished me a good-morning. Now, just at that time the "good-morning" did not hit me just right. Wet and dripping as I was, and tired out, it seemed to me that there was no time for "good-mornings." I answered back pleasantly, because I knew it was my duty. But—shall I dare tell you what was in my mind? I think I will, that you may get a glimpse of the battles that your old friend has to fight. Instead of saying good-morning back to him as is every Christian's duty, no matter what is under the surface, Satan (I think it was) suggested that it would give me rare pleasure to throw a club at his head. I shouldn't want a very big club, I think, but I felt just spiteful enough at everybody and every thing, especially those who looked smiling and happy. Perhaps some of you begin to inquire, "Why,

Bro. Root, where was that little prayer of yours —that warning note that you tell us comes to remind you that danger is near?"

Well, it did come just about then, and it was needed, and I prayed earnestly to be lifted from the slough of despond into which I seemed to be sinking; and it was the answer to this simple prayer—a quick swift answer—that has prompted me to tell you all I have been telling you this morning. You see, I had got into a way of thinking that I was an abused and injured individual. Were you ever there, my friend? And I was saying mentally that I was not going to bear everybody's burdens *any longer;* and the answer seemed to be a reply or rebuke or reproof to this attitude of heart. It came in the line of a couplet of the hymn I have been singing so much of the time during the past two weeks. You will find the hymn on page 647 of our last issue. Here are the two lines that Christ Jesus held up to me.

> I'll bear the *toil*, endure the *pain*,'
> Supported by thy word.

Come to think of it, there *had* been considerable "toil," but not much pain; and then I remembered to thank God, not only for energy, but for strength and endurance to stand such a wetting without injury. Some of you may say that such a wetting is dangerous. No, it is not —at least not to A. I. Root. If I do not get chilly after getting wet, it does not hurt me a particle. The last words of the lines, "Supported by thy word," seemed to suggest something just then; and then my thoughts ran in line with the Savior's work here on earth; and that old favorite text of mine that has been music in my ears for so long came out sharp and clear, "Not to be ministered unto, but to *minister*." Why, it is worth all my experience that morning to have such a bright and vivid practical application of this wonderfully inspiring text, to the true, faithful follower of Christ Jesus. I was out of the mud and miry clay in no time—that is, I was out spiritually. My feet were still in my mud-soaked shoes, and the water was soaking through my hat, saturating the few gray hairs that remain. Drops of water were still on my nose and clothing, but what did it matter? Christ's promises were ringing through my soul, and a great happiness came over me. I took up my old hymn, and it never sounded so sweet before—"Am I a soldier of the cross?" I felt glad that I could answer that I *was* (or at least trying to be), and that I had just withdrawn from a hand-to-hand conflict; and then came the words, "Must I be carried to the skies on flowery beds of ease?" I answered at once, "No, no. Let me rather '*bear* the *toil*' and '*endure* the *pain*,' if, by so doing, I can feel the Master's presence by my side, and my hand in his." "Are there no foes for me to face?" Well, I think there are a *few*—at least, judging from past experience. "Must I not stem the flood?" Well, well. We *had* stemmed one "flood" unitedly, and had come off victorious; and A. I. Root all by himself stemmed another little flood, and he, too, came off victorious, and is now rejoicing.

A word about catching cold. Dear friends, I never catch cold or come to harm of any kind when the blood is coursing through my veins stirred by the enthusiasm of love for Christ Jesus and humanity in general. When I went over at 11 o'clock to take my usual nap I did fear the consequences of lying down with my clothing so damp; therefore I put my feet into the oven just a minute. My wife says she is sure I did not have them there more than *half* a minute. Then I slept half an hour, and awoke rested, well, and happy.

We were planning to get off the strawberry book that day; and it seems to me, as I look back, that I never saw work go along so rapidly and pleasantly before. I told them we wanted a certain number before 3 o'clock. I presume I looked pleasant and happy, and I guess the spirit in my heart must have been contagious, for everybody seemed to catch the spirit of enthusiasm in getting the books mailed. It did not occur to me that any of the friends around me cared particularly for a book on strawberries, and I was greatly pleased when the foreman asked how much I would charge them if all the printers clubbed together and took one apiece. I looked up in astonishment. Said I, "Why, bless your hearts, boys, if you will read the book through you shall all have one without cost, with the compliments of the author and publisher." Pretty soon the office girls heard of it, and wanted to know if they were included; and it gave me additional pleasure, not only to supply them on the same terms, but every one else in our employ.

I have sometimes thought that these texts that burst suddenly upon us, or the memory of these old hymns, braces up the Christian something like martial music in a battle. I have heard that, when an army was demoralized, and the foe fast gaining the ascendency, the sound of the drum and fife, with some familiar inspiring air, would of itself rally the demoralized forces, and give new courage to the soldiers, to such an extent that they would turn round and gain a victory, even when, to all appearance, the cause was hopelessly lost. Now, the Bible promises, and these old hymns that have been almost a battle-cry against evil for ages past, operate in just the same way. Only a few hours before, I felt like throwing a club at the one who bade me good-morning. What a change just the little text and the lines of the hymn had brought! The events of the morning had been only a wholesome school or drill to me. After I had come out victorious over a wrong spirit, it seemed as if the dear Savior delighted to pour out his spirit upon my soul in a way he had never done before. As I passed around from one to another of my helpers, they never looked so good and so lovable as they did then. First I inwardly thanked God for giving me a certain one to be a companion and a helper. Then I discovered that his next neighbor had also grand and noble qualities; and so on it went from one to another, all over the establishment. Even old Charlie, who draws the market-wagon, by the light of the new joy that was filling my soul seemed a grand, good old faithful servant, notwithstanding some of his notions and queer ways. I told my wife that such joy and peace and thankfulness seemed *too good* for any human being, and it almost made me tremble to think that I should probably lose it very soon by some foolish act. I could not but remember the lines:

> O Beulah land, sweet Beulah land,
> As on thy highest mount I stand,
> I look away across the sea,
> Where mansions are prepared for me,
> And view the shining glory shore,
> My heaven, my home for evermore.

And then that last verse:

> The zephyrs seem to float to me
> Sweet sounds of heaven's melody,
> As angels, with the white-robed throng,
> Join in the sweet redemption song.

Well, dear friends, I did stand on the "mount" for nearly two whole days; but I came down with a tumble finally. It was not a very big tumble, however, and I soon clambered back pretty nearly but not quite where I had been. I presume it is not well for us to stand away up entirely clear of Satan's clutches *all* the time. If we did, we might lose charity for those who are tempted and fall, worse than *we*

do. Once in a while the dear Savior thinks best to let us catch a little glimpse of heaven through the clouds, and then he bids us go back to earth to bear the *toil* and endure the *pain*. And now, dear friends, to the point of our text:

This world is full of those who are tempted sorely, and tried sorely. Almost every one whose eyes rest on these pages, especially if he has tried to be a Christian, will remember just such conflicts by the score, as I have told you about to-day. Our daughter Constance, or "Blue Eyes," as I have called her, took the train last evening to go away for the first time in her life from the parental roof. She has gone to Oberlin to school. The first number of GLEANINGS that ever saw the light came from the press on her first birthday. She is almost 18 years old, and so is GLEANINGS. We feel very anxious that she should go through college and finish her education. In many respects she is like her father, and will have the same kind of battles to fight. I fear, however, she is a little more prone to give up and become discouraged. Now, what will help her? What will be the most helpful to any poor soul when it comes to bear life's struggles, and to fight life's battles? Why, there is nothing in the whole wide universe like the r. ligion of Christ Jesus. There is nothing at all to compare with it. Think of the text, "Not to be ministered unto, but to minister," to pin to your banner when you need help, and then the words of the old hymn right in the same line, "I'll bear the toil, endure the pain." It is not only boys and girls who become discouraged and give up, but it is grown-up men and women. It is not only those who are struggling against poverty, but those who have their *thousands* have the same battles to fight. Somebody has said that prosperity is harder to bear than poverty. Suicides are occurring constantly. Look at the papers. Human beings, with God-given powers and great gifts and capabilities, are giving way to evil passions, and going down to shame and ruin. What is there to be compared with the religion of Christ Jesus to help one to bear up? Have you a friend, a brother or sister, or son or daughter away from home, battling with life's dangers? What would you *give*, my friend, to know that this loved one, this relative, was at this moment holding fast to some Bible text like the ones I have quoted, or gaining new courage from some old hymn that bids him—nay, inspires him—to fight on, as a humble soldier of the cross?

May God bless the words of my text to-day; and may the divine influences of his Holy Spirit help to make my meaning clear. And may the grand and glorious thought (which I have *tried* to give you in my poor way) come home to *your* heart in such a way that not all the adversaries of Christ Jesus (with Satan *himself* included) shall be "able to gainsay nor *resist*" the great truths—truths to be found only in that book that tells us of Him who came to *minister* and *not* to be ministered unto.

EDITORIAL.

Whosoever will be chief among you, let him be your servant. —MATT. 20:27.

GLEANINGS ENLARGED.

WE find, upon changing our body type for GLEANINGS, that we have not only enlarged the face of the type, but actually added nearly one-fourth to the amount of reading-matter, without adding to the amount of paper. This seems like a paradox; but the gain is made from the fact that the new type is set more compact.

A GOOD HONEY-YIELD IN CALIFORNIA.

ON page 679 we have a report of a hive on scales. It seems this season our California friends have had a continuous flow of honey from the middle of April till about the middle of July; and at one time the amount reached the nice record of 18 lbs. in a day. If all this great yield is equal to the sample sent us by friend Mercer, he ought to be a happy man. A carload of the same kind is now on the way from Ventura to Medina.

LOSS, DAMAGE, AND MISCARRIAGE BY RAILROAD AND EXPRESS COMPANIES—WHO IS RESPONSIBLE?

DURING the past season there has been much trouble, first and last, in the above line; and quite a few with whom we have deal insist that we shall bear *all* responsibility. In consequence of this we have been obliged to have printed on our invoice sheets the following:

Our responsibility ceases when goods are receipted for in good order by the railroad or express company.

We do not mean by the above that we are unwilling to make every possible effort to look up lost goods, or have damages collected in case the goods can not be found. But we mean this: We can not send the money back, even if the goods should be weeks or months on the way. I know there are some kinds of business where it is possible to guarantee safe delivery. Some seedsmen do this; but seeds are usually small in bulk and light in weight; and when a seedsman says he will take all risks of all kinds, he usually has a profit that will enable him to do so. With our business, however, it is different; for we sometimes sell honey at a profit of only half a cent a pound. In this case there is no margin for us to take responsibilities that do not belong to us. If the goods are delayed because of any blunder of ours in directing them, or because they were poorly packed or poorly made, then, of course, we must stand the consequences (whether we can afford it or not); but to attempt to shoulder and make good all the results of carelessness and inefficient work with the great transportation companies of the world, does not belong to us. Now, quite a few worry and borrow trouble needlessly when goods do not come to hand promptly, taking it for granted that their money is all lost and gone. Everybody should know that all transportation companies are responsible. If they lose your goods, or smash them by their own carelessness, they must make it good. The laws of our land insist on it; and if the companies do not do that, they will have to stop doing business. The most annoying thing about it, however, is that they are permitted to take their own time. Sometimes it takes us a whole year or even more to get pay for lost goods; and on this ac-

count we frequently tell our friends who are suffering for the need of something that does not turn up, that we will fill the order again, and send more goods right on, providing the consignee will agree to take both shipments if both should come to hand. Express companies are liable for unreasonable delay in delivering goods; and I suppose that railroad companies are also liable to some extent for every *unreasonable* delay. Now, if the position we take is in any respect unfair or unchristianlike, I stand ready to be set right.

SPECIAL NOTICES.

PRICE OF BEES AND QUEENS.

The price advances in October to July prices. Untested will then be $1.00; tested, $2.00; select tested, $3.00. We ran out of imported queens within the last few days, but are daily expecting a fresh importation. Prices will be four, five, and six dollars respectively. *Later.*—Imported queens are here.

HONEY JUMBLES AND CAKES.

We have just sold to a large bakery the off grades of honey received from Arizona, to be used in making honey cakes and jumbles; and we take some of these in exchange for the honey. We learn that this bakery alone is using about 4 bbls. of honey daily for honey cookies, and they are having such a big trade they are running night and day, and still behind on orders. If any of our readers have any off grades of honey that don't find ready market at a fair price, please send us a small sample, naming the quantity you have, and how it is put up, and the least you will take for it. We will try to find you a market. The honey jumbles are the same that we sold two or three years ago, and are worth $2.00 a box of about 14 lbs. Any less quantity will be 20 cts. per lb. The honey cakes have only about half the quantity of honey in them, and are sugar-coated. Price $1.50 per box, or 15 cts. per lb. for a less quantity. We will mail a sample package of either, put up in a sample pasteboard box or section carton, postpaid, for 10 cents.

PLANTS THAT MAY BE PUT OUT IN THE FALL.

During the last of September and first of October is an excellent time to set out a good many kinds of plants. Asparagus will do nicely. Raspberries, blackberries, and currants, will also get well settled for winter. If the soil is very heavy clay, it may be best to mulch them to prevent the frost from throwing them out. Last, but not least, I would put out a few of such kinds of strawberries as I wished to test. The strawberry is peculiar, inasmuch as you can force it just as late in the fall as you please, by cultivation and manure; and no matter how sudden severe weather sets in, it does not seem to harm it at all. I have never seen any harm to strawberries from severe winters unless it is the heaving out by the frost, and this seldom happens with plants that get well rooted. Judicious mulching will prevent it entirely. In consequence of the recent heavy rains, we have had an abundant supply of the plants we have advertised, and we can also furnish, in limited quantities, to those who may wish to test them, the Crescent, Cumberland, Louisa, Belmont, Miami, and Sharpless. The price of all strawberries from this time until further notice will be 15 cts. for 10, or 75 cts. for 100; if wanted by mail, add 5c for 10, or 25c per 100. Jessie, Bubach, Haverland, and Gandy, we expect to be able to supply all demand for until the ground freezes so as to hold them fast. The others will not last very long.

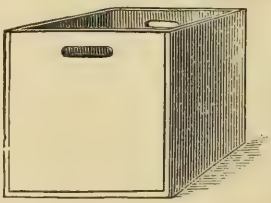
WHITE COMB HONEY FROM MATTHIAS SCHNEIDER, JR.

The comb honey mentioned in this department in last number of GLEANINGS, reached us just three days ago, as we write this, and to-day we are shipping the last pound of it, and haven't enough to fill orders. We don't see any prospect of having more in stock for two or three weeks, although we may get some before that time. This honey from Mr. Schneider is about the whitest honey we ever saw, and it came in the best shape of any shipment we ever received. I believe there was not a case leaking in the whole lot of over 3000 lbs.; and the secret is, it was crated up in crates of about 200 lbs. weight, with handles projecting from each end to carry it by. Nine 24-lb. cases, or 18 12-lb., were put into a crate which consists simply of a frame of pieces ⅞ by 3 or 4 inches. In the bottom of the crate the cross-pieces running the shortest way are on the outside, and on top of these are some thin boards nailed between the outside strips, making the bottom nearly tight. On this is spread straw from one to two inches deep for the cases to rest on and receive the jar if the crate should be dropped. A similar method of crating honey was described by J. A. Green, May 1st No., first article. It seems to have proven such a great success wherever tried that we would advise bee-keepers not to ship any more honey to market in small quantities without putting it up in similar crates. You will save, in better price received for honey, a good many times the cost of these crates.

1890 ITALIAN QUEENS FOR BUSINESS.
18tfdb W. H. LAWS, Lavaca, Ark.

POTATO-BOXES

GALVANIZED BOUND.



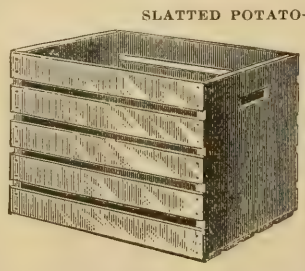
(TERRY'S).

These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price, nailed up, 25 c each; 10, $2.25; 100, $20.00.

In the flat, including nails and galvanized iron, Per pkg. of 1 doz., 2 nailed and 10 packed inside, $2.10; 10 pkgs., 5 per cent off.

SLATTED POTATO-BOX



As the pieces of which the above are made are mostly from remnants of basswood used in making sections, we can furnish them nailed up for 20 cents each; 10 for $1.85; 100, $16.00. Material in the flat, including nails, in packages of 12 boxes each, at $1 50 per package, and each package includes *two* of the 12 boxes nailed up, complete. Ten pkgs, 5% off.

Please be careful in ordering to say whether you want the *galvanized bound* or the *slatted* boxes.

A. I. ROOT, Medina, Ohio.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; $1.20 for 500; $2.00 for 1000. A. I. ROOT, Medina, O.

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Kind Friends!

I have now caught up from my delay caused by my illness. If weather permits, I shall have a few more queens for sale. I now have almost full control of the drones; others all dead; guarantee every queen mated to Italian drones. Drop me a card, telling me how many you can use, and pay on arrival of queens. Only untested and virgins, $1.00 and 50 cts. each. Write quick. I will not promise to send one, therefore I do not ask pay in advance.

JACOB T. TIMPE,

19d **Grand Ledge, Mich.**

☞In responding to this advertisement mention GLEANINGS.

SCOTCH RABBITS. Will sell a few gray Scotch rabbits, Samuel Wilson's strain, at $3 00 per pair. Order quick if you want any. 19tfdb
E. HOSTETLER, East Lynne, Mo.

FOR SALE.

A home of 3 acres; well set to all kinds of fruit, and bearing; box house, 3 rooms; 37 colonies of bees in S. hive. Price, four hundred. Richest of land.
19d D. H. WELCH, Vineland, Douglass Co., Kan.

50 COLONIES OF BEES FOR SALE,

In ten-frame Langstroth hives, $3 per colony. Have plenty of honey to winter on. Also a lot of bee-supplies. JOHN CROMBIE, Columbus, Wis.

Bee-Keepers' Supplies.

WHY ✣ SEND ✣ LONG ✣ DISTANCES?

SEND NAME ON POSTAL CARD FOR MY NEW PRICE LIST TO

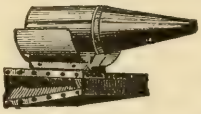
C. P. BISH, Grove City, Mercer Co., Pennsyl'a.

Formerly of St. Joe Sta., Butler Co., Pa.
ESTABLISHED IN 1884. 9tfdb
Please mention this paper.

NOW is the time to set **STRAWBERRIES** for next year's fruiting. Write for fall price list of plants and Secrets of Success in Growing Small Fruits; sent free, on application to I. A. WOOLL,
16tfdb Elsie, Mich.

☞In responding to this advertisement mention GLEANINGS.

✣BEST ON EARTH✣



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid		$2.00
Conqueror "	3 "	"		1.75
Large "	2½ "	"		1.50
Extra (wide shield)	2 "	"		1.25
Plain (narrow ")	2 "	"		1 00
Little Wonder,	1¾ "	"		65
Uncapping Knife.....				1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Neb.; G. L. Tinker, New Philadelphia, O.; E. Kretchmer, Red Oak, Ia.; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.**; R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

MONMOUTH, JESSIE, and **MAY KING** strawberry-plants; only 50c per 100, or $4.00 per thousand. S. F. REED, N. Dorchester, N. H. 18d

Wants or Exchange Department.

WANTED.—To exchange pure-bred poultry for white extracted honey. Select breed you want from my circular (sent free) and mail sample of honey. S. P. YODER, East Lewistown, O. 17tfdb

WANTED.—I will exchange sewing-machines, new, and fruit-trees, for honey. Address
15-24db E. PETERMAN, Waldo, Wis.

WANTED.—To exchange all kinds of wall paper, for honey. 1tfdb J. S. SCOVEN, Kokomo, Ind.

WANTED.—Honey in exchange for supplies or cash; must be cheap. F. C. ERKEL, LeSueur, Minn. 18-19d

WANTED.—To exchange full colonies of bees for apiarian supplies of every description, or for automatic section-machine. W. H. PUTNAM,
18tfdb Supply-dealer, River Falls, Wis.

WANTED.—To exchange National Safety Bicycle, ball bearing, cost $75.00 when new; used one season; will take white-clover honey, extracted, or offers. E. C. ELVER, Mt. Horeb, Wis. 18-19d

WANTED.—To exchange all kinds of nursery stock, peaches, pears, grapevines, raspberries, strawberries, etc., for foundation, beeswax, empty combs, or offers. Address T. G. ASHMEAD, Williamson, N. Y.

WANTED.—To exchange Ply. Rock fowls, fine stock, for a lot of empty L. combs for extracting, or offers. T. G. ASHMEAD, Williamson, N. Y. 18tfdb

WANTED.—To exchange bee-hives for bees, will guarantee satisfactory hive. 18tfdb
LOWRY JOHNSON, M'F'R, Masontown, Fay. Co., Pa.

WANTED.—To exchange a Given foundation press for white extracted honey.
18tfdb J. M. ROOD, Dryden, Lapeer Co., Mich.

SITUATION offered to a competent wood worker who thoroughly understands the mnaufacture of bee-hives, one-pound sections, etc. Address with references, W. H. PUTNAM, River Falls, Wis. 18tfdb

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

WANTED.—To exchange a 200-egg Excelsior incubator, used one season; cost $25.00, for photographic outfit, books, or best offers. 19-20-21d
O. S. COMPTON, Glenwood, Cass Co., Mich.

WANTED.—To exchange a fine 2-year-old registered Jersey bull, for extracted or comb honey, or offers. 19-20d B. T. BALDWIN, Marion, Ind.

WANTED.—To exchange two good cornets for extracted honey. Write for particulars to
R. H. BARTON, 467 Water St., Bridgeport, Conn.

WANTED.—To exchange one steam honey-evaporator, and one 240-egg incubator, for good, sound double work harness (medium weight), side saddle, single harness, one-piece sections, S. hives in flat, or offers. S. B. SEAMAN,
Harford Mills, Cortland Co., N. Y.

WANTED.—To exchange a 6x9 self-inking press, an excellent outfit; cost me $80.00; four fonts of type. 19-20d L. L. ESENHOWER, Reading, Pa.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made.
EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

WANTED.—To exchange highly polished Wisconsin pearl shells, for honey, small-fruit plants, or offers. P. H. FELLOWS, Broadhead, Wis.

WHO has bees to trade for 100 acres of fine bottom land with plenty of timber in Illinois? Will trade a part or all, and give a bargain. Title perfect.
J. B. ALEXANDER & Co., Hartford City, Ind.

WANTED.—A few pairs nice ferrets. Will exchange fine Italian bees or pay cash.
CHAS. MCCLAVE, New London, Ohio.

WANTED immediately.—A man to take entire control of 150 colonies of bees. For particulars address 10-20d S. A. SHUCK, Liverpool, Ill.

WANTED.—To exchange new Dibbern tin bee-escapes, brood-frames or hives, for empty combs (either L. or Heddon frame), foundation, or any other supplies. Write E. F. QUIGLEY,
19-20d Unionville, Putnam Co., Mo.

WANTED.—Dry basswood plank.
W. D. SOPER & Co., Jackson, Mich.

WANTED.—To exchange Italian bees in L. hives, for two well-trained fox-hounds. Apply at once to J. B. MITCHELL, Hawkinsville, Pulaski Co., Ga.
19-20d

THE CANADIAN

Bee Journal	Poultry Journal
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per Year.	75c. Per Year.

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.
☞Please mention GLEANINGS. 6-11db

TAKE NOTICE!

BEFORE placing your Orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address
R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.
☞In responding to this advertisement mention GLEANINGS.

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at $1 a year. *Big cash premiums.* Sample FREE. THOS. G. NEWMAN & SON, 246 East Madison Street. - - CHICAGO, ILLS.

MUTH'S
HONEY - EXTRACTOR,
SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.
PERFECTION COLD-BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON, Cincinnati, Ohio.*

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.
J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.
☞In responding to this advertisement mention GLEANINGS.

CONVENTION NOTICE.

The Missouri State Bee-Keepers' Association will meet in convention at Mexico, Mo., Oct. 22 and 23. A good programme, and an instructive and interesting time is expected. All persons interested in bee culture are cordially invited to attend. Board can be obtained for 75 cts. per day, or 20 cts. per meal.
J. W. ROUSE, Sec., Mexico, Mo.

KIND WORDS FROM OUR CUSTOMERS.

WHAT THEY SAY OF THE A B C OF STRAWBERRY CULTURE.

It is an excellent little manual.
H. GEO. COMEY, Ed. Orchard and Garden.
Little Silver, N. J., Sept. 22.

The *New England Farmer* of this week says:

The book contains a vast amount of practical information, being just exactly what is needed, and it should have large sales.

It adds another to the valuable works that you are publishing, and is a nice work, full of information, worth many times the money asked for it.
Hamilton, Ill., Sept. 18. DADANT & SON.

I like the work so much that I propose to print almost no introduction in my catalogues hereafter, but refer my customers to your book—or Mr. Terry's—to find out how to grow strawberries.
Cuyahoga Falls, O., Sept. 15. M. CRAWFORD.

My strawberry-fever burned out some years ago, and you know it is not easy to communicate such ailments the second time; but I enjoy the interesting little book all the same. EMERSON E. HASTY.
Richards, O., Sept. 18, 1890.

We have not a great many works on the strawberry; and having had a good deal of practical experience in growing strawberries for family use and the market we do not hesitate to recommend the recent work, "A B C of Strawberry Culture," by T. B. Terry and A. I. Root. The volume is handsomely bound, and contains 150 pages attractively illustrated.—*Tennessee Farmer.*

"A B C of Strawberry Culture" is the title of a neat little book of 148 pages which contains the experiences of T. B. Terry and A. I. Root, in the pleasant and profitable work of growing this popular fruit, the strawberry. Those who are acquainted with Mr. Terry's success in this branch of horticulture will wish the book; and those who are not, should get the book to find out how he attained his success.—*Farm, Field, and Stockman.*

OUR STRAWBERRY-PLANTS.

The plants arrived on the 20th in good condition. I have never before seen such good roots on young plants. E. A. TAYLOR.
Medford, N. J., Sept. 22.

I received the strawberry-plants in splendid order. We had three days of rain on them, and not one of 1200 wilted. W. H. BUTLER.
Clifford, Ind., Sept. 13, 1890.

The strawberry-plants came O. K., and are as fine as I ever saw, and very nicely packed. As I unwrapped them it seemed to me as though I could almost taste their fruit, and that night I dreamed of eating strawberry shortcake. G. W. DAVIS.
Pine Creek, Mich., Sept. 8.

The queen-cages are exceedingly nice, and show what nice work can be done with accurate machinery. J. P. MOORE.
Morgan, Ky., Aug. 25.

DOVETAILED HIVE; BEST SECTION-HOLDER A SUCCESS.

I consider your Dovetailed hive the best and most convenient one I ever used. I bought some from Mr. J. D. West, that he got of you last spring. The sections come out of the supers the easiest of any I
R. W. HIGINBOTHAM.
Morris X Roads, Pa., Sept. 1.

Goods received O. K. I am well pleased with them all. L. J. STARK.
Harris, Minn., Sept. 2, 1890.

I want your valuable journal continued as long as it retains its present tone and usefulness. I differ with you denominationally, but we will meet all true followers of the one Christ over there, I hope.
Phalia, Miss. F. GENTRY.

OUR SOLAR WAX-EXTRACTOR.

The solar wax-extractor, bought of you this spring by T. G. Newman is a perfect success in every particular. It just does the work nicely.
DeKalb, Ill., June 18. A. Y. BALDWIN.

ALFALFA HONEY.

Our alfalfa honey came in splendid order, and is pronounced excellent. I was very curious to taste alfalfa, and glad when I found the shipment was of it. Now I am delighted with it, and prefer it to white clover for my own use. That peculiar flavor is delicious. MRS. JAS. M. DAVIS.
Ligonier, Pa., Aug. 26.

MORE ADVERTISING THAT PAID.

During the last few days, orders came in so heavy that I found I should be all out, but did not realize it in time to write you sooner. I can not fill a third of the orders I am now receiving from my advertisement. D. G. EDMISTON.
Adrian, Mich., Sept. 13.

ARRIVED IN SPLENDID SHAPE.

The queen came to hand in splendid shape, lively as a cricket, and I have got her in the hive in good shape. GEO. A. GOULD.
Marshfield, Oreg., July 5.

THE CANDY PLAN A SUCCESS.

The queen I sent for some time ago came to hand in good shape, and was safely introduced by the candy plan. Thanks for sending such a fine one.
Alliance, O., Sept. 1. CURTIS E. BOWMAN.

THE TESTED AND UNTESTED QUEEN.

The tested queen shipped Sept. 5 came all right, and she is in the hive safe. She is a beauty. You sent me one untested queen in July. I placed her in a hive that was nearly destroyed by worms, and I have now the finest hive of bees I ever saw in my life. C. W. HUFFMAN.
Richwood, O., Sept. 15.

A GOOD TESTIMONIAL FOR BINGHAM SMOKERS.

The Bingham smokers I received last year, as well as the soldering-iron and grindstone, have been very satisfactory. The smoker has done very much in the line of quieting the bees, and I would not be without one of the Binghams, since I tried them. Frank Benton told me, years ago, about their excellence, but I did not think so very much of it till I tried it myself. I handed one over to my brother, and worked with one mys lf. The smoker is working well; but I am afraid our Arabs have not always the most careful hands; they might get spoiled, so I had better have a few on hand.
PH. J. BALDENSPERGER.
Jaffa, Palestine, Aug. 21, 1890.

FURTHER PARTICULARS FROM W. S. HART'S APIARY.

I was greatly surprised to find the engraving of my photograph, sent you a short time ago. I sent it, as I thought it quite a pretty picture, and one that would interest you. I am pleased to have it in GLEANINGS, and especially so since it is so excelently well done. I am not an expert judge of such work, but it seems to me that it is one of the best engravings that I ever saw. The hives, as you suggest, though not the Simplicity, are much like them; and when making my first one I embodied a good many features of that hive. I claim no merit for my hive over the Simplicity, except that it was a little easier for me to construct with the tools at hand. It takes the L. frame, the best of all for extracted-honey production in this State. The ground is kept clean under the trees and about the hives, only by the vigorous use of the hoe every little while through the summer. Vegetation grows rank in the summer, but in the winter the ground will remain quite clean for weeks after a hoeing.
Bradford, N. H., Sept. 8. W. S. HART.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—We have received up to date, 463 cases of comb and 40 packages of extracted honey. Fancy clover continues scarce, and we have made sales of 1-lb. sections as high as 18 cts. Medium grade clover sells at 14@16c. Buckwheat, 1-lb. sections, 12@13; 1½ to 2 lb. sections, 10@12. We never knew the demand so good for extracted at this early date. We quote 7@10.
CHAS. McCULLOCH & CO.,
Sept. 20. 339 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—The demand for comb honey still continues good, and the supply still continues light. We quote choice white 1-lb. sections at 16@18; choice light, 1-lb. comb at 14@16; dark, 10@12. Extracted, white, 6@7; dark, 5@6.—*Beeswax*, 25.
CLEMONS, MASON & CO.,
Sept. 20. Kansas City, Mo.

CINCINNATI.—*Honey.*—There is a good demand for all kinds of honey. Arrivals are fair. We quote choice comb honey at 14@16 in the jobbing way. Extracted, 5½@8 on arrival. *Beeswax* is in good demand at 24@26 on arrival, for good to choice yellow.
Sept. 22. CHAS. F. MUTH,
Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—There is no appreciable change in the market. Comb is scarce, with good demand; but it must be light to bring top prices. We are very nearly cleaned out of extracted. *Beeswax*, prime, 27.
D. G. TUTT GRO. CO.,
Sept. 19. St. Louis, Mo.

COLUMBUS.—*Honey.*—Comb honey selling at 18 cts. for choice white clover. Market is active, and well cleaned up. All shipments of choice goods meet with ready sale.
EARLE CLICKENGER,
Sept. 18. Columbus, Ohio.

BOSTON.—*Honey.*—We quote best white-clover, 1-lb. sections, 17@18; 2-lb., 15@16. Extracted, 7½@9. No beeswax on hand.
BLAKE & RIPLEY,
Sept. 20. Boston, Mass.

DETROIT.—*Honey.*—There is no white comb honey in the market, and fall honey is selling at 13@14c. Extracted, 7@8.—*Beeswax*, 26@27.
Bell Branch, Mich., Sept. 19. M. H. HUNT.

NEW YORK.—*Honey.*—Fancy white, in 1-lb. sections, 17@18; fair to good, 14@17; fancy, 2-lb., 14@15; fair to good, 13@14; fancy buckwheat, 1-lb., 12@13; 2-lb., 10@11. Extracted, white clover, 8½@9; buckwheat, 6½@7.
CHAS. ISRAEL & BRO.,
Sept. 10. 110 Hudson St., N. Y.

FOR SALE.—5000 lbs. well-ripened extracted honey, in 60-lb. cans. C. H. STORDOCK, Durand, Ill. 18-23db

FOR SALE.—1200 lbs. extracted clover honey, in 60-lb. cans, at 10 cts. here.
R. H. BAILEY, Box 81, Ausable Forks, N. Y.

FOR SALE.—400 lbs. choice white-clover honey in 2-lb. sections; will pack in 24-lb. cases, crated to suit purchaser. I want 16 cts.; delivered at R. R.
WM. VAN AUKEN, Woodville, Jefferson Co., N. Y.

FOR SALE.—1000 lbs. white alfalfa comb honey, in 12-lb. cases, at 16c per lb.; also 4000 lbs. extracted, very fine, in 75-lb. cans, at 10c per lb.
J. T. CLAPP, Supt. Denver Land Co.,
19-22db Broomfield, Boulder Co., Colo.

FOR SALE.—1000 lbs. of buckwheat comb honey, in 1-lb. sections.
D. F. LASHIER,
19-20d Hooper, Broome Co., N. Y.

FOR SALE.—50 one-gal. tin cans of white clover extracted honey; very fine and white, beginning to granulate some. I want 10 cts. per lb here
G. L. JONES, Grand Ridge, LaSalle Co., Ill.

FOR SALE.—25 000 lbs. of the very finest honey, in scant 1-lb sections; put up in white basswood cases, holding 12 sections. A very fancy lot. The price is 20c per lb. on board cars here. Who wants the lot? Address L. W. BALDWIN & SON, Independence, Mo.
19tfdb

WANTED.—One or two thousands pounds of nice comb honey. Write, giving amount on hand and price wanted. A. D. ELLINGWOOD, Berlin Falls, N. H.
17tfdb.

WANTED.—White comb and extracted honey; state price, package, etc. B. WALKER. 17tfdb
Capac, Mich., or Prairie du Chien, Wis.

FOR SALE.—50,000 lbs. of extra fine sage honey in 60 lb. tin cans. Also two carloads of light amber honey, for sale at 6c per lb., f. o. b.
L. E. MERCER & SONS, Ventura, Ventura Co., Cal.
19tfdb

CHOICE
HONEY
FOR SALE
CHEAP
ADDRESS
JAMES HEDDON, DOWAGIAC, MICH.
☞In responding to this advertisement mention GLEANINGS.

NEW FIRM.
W. D. SOPER & CO.
We are now in shape to manufacture every thing needed in the apiary. Hives, sections, packing-boxes, etc., made to order. Get our prices before buying elsewhere. *W. D. SOPER & CO.,*
118 & 120 Washington St., Jackson, Mich.
☞In responding to this advertisement mention GLEANINGS.

DON'T SPEND AWL YOUR MONEY
Before reading this; 12 Red Raspberries, 60; 12 Blackberries, 85c; 12 Currants, 70c; 12 Gooseberries, 90c; 12 Grapevines, 3 kinds, Concord, Brighton, Niagara, $1.60; Lilium Harrisi, the true Bermuda Easter Lily, fine large bulbs, 30, 50, and 75c. All free by mail. Catalogue free.
THEODORE JENNINGS,
Box 69, Port Chester, N. Y.
☞In responding to this advertisement mention GLEANINGS.

Black and Hybrid Queens For Sale.

I have 30 nice hybrid and 35 young black queens for sale. Send me 50c and get one of them.
16-17-18d A. D. ELLINGWOOD, Berlin Falls, N. Y.

Six hybrid queens at 25 cts each; these queens are young and extra prolific; three of them produce bees that show about all the markings of pure Italians. L B SMITH,
Cross Timbers, Johnson Co., Texas.

CONVENTION NOTICES.

The next convention of the York and Cumberland Bee-keepers' Association will be held at Goodwins Mills, Me., Oct. 18, 1890. All persons interested are invited.
Waterboro', Me., Sept. 20, 1890. C. W. COSTELLOW, Sec'y.

The 23d semi-annual session of the Central Michigan Bee-keepers' Association will meet in Pioneers' Room, Capitol, Lansing, Mich., on Wednesday, Oct. 15. Everybody interested, come. Ladies are cordially invited to attend.
Grand Ledge, Mich. W. A. BARNES, Sec'y.

Vol. XVIII. **OCT. 1, 1890.** **No. 19.**

TERMS: $1.00 PER ANNUM, IN ADVANCE; 2 Copies for $1.90; 3 for $2.75; 5 for $4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 13 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

SOME QUESTIONS IN REGARD TO CYPRIANS AND SYRIANS.

DOOLITTLE'S EXPERIENCE IN REGARD TO A CLEANSING FLIGHT IN THE WINTER TIME.

Several questions have been sent in for me to answer; and as the most of them are appropriate for this time of year, I will, with your permission, Mr. Editor, answer them through the columns of GLEANINGS, answering them by number.

1. "Can Cyprian and Syrian bees be distinguished, by their color or markings, from the Italian bee or from each other?"

Well, that depends whether the asker of the question is expert in detecting nice colorings; whether he is a close observer, and whether he has had large experience with the different races named. The claim was originally put forth, that the Cyprian bee had a shield between its wings, of the same color as the golden bands on the abdomen, and that, as no other bee had this shield, it was therefore easy to distinguish the Cyprian race from that of any other. However, it was soon found out that the best specimens of Italians showed this shield fully as plainly as do the Cyprians, so that claim went for naught. Candidly, I do not know that I could tell a beginner how he could tell these races of bees apart, were there nothing but the coloring of each to go by. The yellow on the Syrian is of a little darker or duller shade than that of the Italian, while the same color on the Cyprians is of a brighter orange than that of the Italian, and much more so than that of the Syrian. This I say of them in their purity—not when they are considerably mixed with "blood" from each other, as is quite apt to be the case. When thus mixed, the best authorities are so badly puzzled that it is no wonder the above question was asked by one not thoroughly posted.

2. "Do the Cyprians and Syrians rear more brood than the Italians?"

Yes, as a general rule they do. The Cyprians, in my opinion, would be an acquisition, were it not for their vindictiveness, which is so great that it can not be tolerated. They commence breeding more profusely, early, than any other bee with which I am acquainted, thus getting many bees on the stage of action just in the right time for the white-clover honey harvest; while when the harvest is well under way they rear no more brood, to become useless consumers, than do the Italians. I never parted with any thing in the bee line with more reluctance than I did with the Cyprian bee. The Syrians are very different in this locality, regarding brood-rearing, from either the Cyprians or the Italians. They do not begin rearing brood to much more than supply the waste of the hive till the honey harvest commences, when they go to brood-rearing on the most extensive scale, this brood consuming the larger part of the honey gathered by the few bees they have at the beginning of the harvest; while this brood, after it has hatched into bees, becomes a consumer of the little honey they did not consume while in the brood form. I had from two to six Syrian colonies of bees for four years, and each fall I had to give them nearly all of their winter stores in the shape of frames of sealed honey taken from my Italian colonies. During this time I succeeded in taking about 50 lbs. of inferior comb honey from them. Of all the bees I ever had in my apiary, the Syrians proved much the poorest. Some speak well of them, and I think that they might prove better than with me where the season is of long duration for honey.

3. "Some say that bees need a cleansing flight where wintered in the cellar; others say that such a flight is unnecessary. Which is right? I do not wish to carry mine from the cellar till time to set them out for good, unless it is actually necessary."

It used to be thought, by nearly all, that bees should be carried from the cellar on pleasant

days during the winter for a fly; but of late years most of our best apiarists believe this is of no special benefit. I used to carry mine out, up to about twelve years ago. At that time I commenced to experiment by so arranging in the fall that I could carry a part out without disturbing the rest; and when there came a warm day these were carried out, and the rest left undisturbed. The result proved that, on the whole, those not touched wintered a little better, if any thing, than did those taken out; consequently I have not carried a colony out of the cellar for a cleansing flight during the last n years; only as two or three have been carried out and fed, as I feared they would starve before spring. Some say, "Leave them as long as they are quiet;" but my experience has been that there is nothing gained by carrying out the uneasy ones, should there be any such; for if they are going to die, carrying out for a flight does not seem to help them much if any.

4. "Would there be any injury to bees if placed in a cellar under a kitchen where there is lots of noise all winter?"

If the bees are so arranged that no jar comes to them, so far as my experience goes, noise does no harm. It is the jar that arouses bees in the winter, not noise without jarring. To illustrate: In sighting my rifle one pleasant winter day I fired it within eight feet of two or three hives of bees. Just before firing I listened at the entrance of these hives and heard the low hum of the bees which we always hear; but before I had fired ten shots these same bees were all in an uproar, many coming to the entrance. At the time I laid it to the noise; but thinking differently a few days afterward, I again fired the same number of shots 50 feet in front of the hives (the first having been fired in the rear), so that the noise might reach them at the entrance, and they were not disturbed in the least. I now fired at the same distance as at first, when they became agitated the same as before. G. M. Doolittle.

Borodino, N. Y., Sept. 16.

Friend D., we are exceedingly obliged to you for your answers on the above subjects. I believe we almost if not entirely agree with you in regard to Cyprians and Syrians.—In regard to the cleansing flight in winter time, I think the general decision is about as you give it. So many have testified to excellent wintering right under the kitchen, where there is lots of noise, we can not think the noise would be any objection, providing the hives rest on the ground, and the jar of the floor does not shake the hives.

CALIFORNIA.

THE NUISANCE OF ODD-SIZED FRAMES.

In my California letter on swarming I did not say any thing about the swarm that took an old oil-can for a home, nor the one that built in the hollow shell of an old pumpkin, nor yet of the one that came down the chimney into the fireplace below, to the astonishment of the family in the room. This last was down near the river, where there is more timber than here. Such are some of the wonders of California bees. They are put into all sorts of boxes for hives. Nail-kegs, barrels, and store-boxes I have seen used. Even where regular hives are made, they are made according to the size that the lumber will cut best for, more than to any regular or standard size. A dealer in supplies here showed me his patterns for cutting foundation by; and how many do you think there were? About 30, I should say, though I did not count them. It is everywhere evident in California bee-keeping, that the bees are made to be secondary to other considerations. They are not valued here as they are in the East. The fixtures of an apiary, including hives, contain a larger per cent of the value of an apiary here than there. It is not so hard to increase here. Sulphuring, or killing bees, is often done to get the honey, where some one has taken a swarm or two in a box or keg some months before.

In the apiary we bought, we found about four sizes of frames for the same size of hive. The hives and frames were substantially made of good material, and would have been good property had the maker fortunately understood the proper size of a bee-space. I can say that I understood far better what the proper distance was before commencing with bees at all than the owner of this apiary did. I read the A B C book, and had the fundamental principles well fixed before commencing.

We found frames in our apiary that we could hardly push down between the waxy walls of the hive, and frames that stood away fully ¾ of an inch from the sides, and frames that did not come within more than an inch of the top of the ones below. The bees were obliged to build in between in order to crawl up on the upper frames, which made very bad work when removing a frame. I suppose Mr. Root wouldn't tolerate such frames for a day longer than absolutely necessary, and I am sure we will not, for they would drive us out of bee-keeping altogether. Buying and selling bees is much hindered here by the many sizes of hives used. The buying of bees usually means a transfer to your own size of frames, and there is not much selling in lots less than a whole apiary.

The average California bee-keeper is apt to "lump" things, as the expression is. If it is a good year he expects a good yield of honey; and if a poor one, he reasons that it doesn't make much difference. I can not say that the bee-men here are as progressive and intelligent as they might be. Among the large bee-keepers are men of fully equal capacity to those in other lines of business; but it seems to be resorted to sometimes as a make-shift way of getting a living. Perhaps I am wrong about this, and the neglected appearance of many California apiaries may be due to the fact that persons of small means take this way to procure a living, and stretch their capital to accomplish as much practical result as possible, so that the appearance is much neglected. Afterward these persons embark in other enterprises, and leave the apiaries in the hands of others just commencing business, so that no outlay is made in the way of taste and appearance. If the outward appearance of many apiaries and their surroundings were any index to the quality of the honey produced, I should not wonder that it brings a low price in the world's markets. Some one who could get up extracted honey as nicely as Mr. Terry does his strawberries would doubtless find it to pay. It is possible to cleanse oil-cans so that they are clean, and free from taint; yet carelessness in their use has doubtless done much to lower the quality of the California product.

BEES AND FRUIT IN CALIFORNIA.

"Bees versus fruit" is a question I suppose you who are old bee-keepers have discussed until you hardly care to say any thing more about it. But it is all new to me; and when I saw the fruit of my neighbors covered with my bees I suppose I felt that there were at least two sides to the question. It is claimed by some here, that the bees eat into sound fruit to obtain the

juice. Others say that they take only injured fruit that birds have first worked on. I have taken neither view, but so far have only seen the little fellows run over the fruit, lapping with the wonderful appendage they have for taking honey, and not using the parts with which they uncap comb honey. I can see, however, that, by constantly taking away the juices, the dry substance of the fruit would soon shrink very much when unprotected by the film of dry juice that would otherwise form a covering over the injured part. In this way fruit melts away where there are many bees to keep the juices cleaned off, and the owner may reasonably attribute a loss to the agency of bees. My neighbors have been lenient in these matters, and refused to accept any thing for their losses. Yesterday, while picking figs I came to a white fig-tree that had a sound as of a swarm, because of the many bees that were working on the fruit. Grapes are worked on by them until only the shell or skin is left; but, as in the case of the figs, it is fruit that has begun to candy in the juices, and is not ripening perfectly. A mean between the entire prohibition of bees in fruit-districts and the putting of large apiaries in positions close to fruit-farms, especially where other locations will answer as well, would seem to be the right solution of this question. Where one man owns both bees and fruit there will never be any trouble, and there should not be in any case.

I was rather surprised to find honey in the hives, almost ready for another extracting. The bloom of most of the flowers is gone, and I did not suppose the bees were getting enough from the fruit to accumulate much stores. But I noticed that the bees working on fruit would get either such a large load, or the effects of the juices were such that they were hardly able to take wing, and seemed half drunken. I have caught the great steel-blue wasp, with scarlet wings, when it was working on fruit, as it seemed to lose fear. This wasp is over 2 inches long, and is very beautiful. There is alfalfa down in the valley, about three or four miles away, and I have hoped that our bees would find it, as it would help much in the present dearth of bloom on the high land. I am sending my honey home to my brother in Ohio; and there is satisfaction in thinking of my old neighbors and friends getting my honey to use. God bless them all, and draw them near to him with the bands of love.

The yield this year has not been as great as we at one time expected. We shall get about 40 or 45 cans in all, which is not a large yield from 70 hives. The white sage put forth multitudes of buds which did not mature into bloom. Had they done so, four apiaries like ours would not have kept them emptied of an ordinary honey deposit. But they failed, for lack of moisture, perhaps, and we are content with less than might have been. There has been fruit to work with and engage our time. God has been merciful, and we do not have a right to complain at all.

COMBS MELTING DOWN WITH HEAT.

We shaded our hives, as it is necessary to do here, and ours were in a low place where the sun struck strongly. An oil-box costing five cents made two shades. One very hot day while we were away in Los Angeles a hive melted down into a mass almost. It seemed to be because of a large stone that stood on the north side, and reflected the rays into the hive. The same day a man in the village who had but one hive (or box, rather), in which the bees built to the top inside, had it melt down by the heat of the sun.

Comb honey at 12½ cents, or nicely extracted honey sent to some friend in the East to sell, will pay pretty well, I think, here in California, where so little capital is needed for an outfit. Retailers here charge well for handling any thing in the food line, though I can see that their margin is being lowered all the time. A year ago, grocers at Los Angeles sold honey, that cost them 12½ cents, at 20 cents. This year it is 15 cents at retail, as the style is to go 5 cents at a time, which is a relic of early days, when nothing less than 25 cents was accepted for *any* thing. Where one can dispose of his product direct to the consumer there is a good profit; but you can not well do this if you go back in the new districts away from the cities, where the best bee pasture is. But if near a small village or town, there may be a pretty smart local demand, as the majority of the people will be engaged in other lines of business, and may be willing to give you a better price right at home than you could obtain by sending to the large markets.

FLUCTUATION OF PRICES IN CALIFORNIA.

Prices fluctuate wonderfully here, especially on heavy articles like potatoes, which range from nothing up to 3 cents a pound. Every thing of food is sold by the pound, with the single exception, I think, of comb honey. Business does not move as steadily and systematically here as in the older East. There are more ups and downs. True courage and moral worth are recognized here as quickly as anywhere in the country. A man's clothes or his pedigree counts but little. They make a quick estimate of a man of what there is in him; and if he has good elements of character, and wants to do what is right, they seem quick to understand it, and reward it accordingly. W. S. RITCHIE.

Sierra Madre, Cal., Sept. 8, 1890.

Friend R., I remember vividly almost every point you make; and I thank you for your candid and honest statement in regard to the matter of bees and fruit. I noticed your concluding thought, that people in California make a quick estimate as to a man's real value. Fine clothes and plenty of money do not of themselves give him a place in society where other things are lacking. I expect to see California lead us in many things; and I hope and pray that it may be in placing a high estimate on the value of true Christianity.

THE FOUR CLASSES OF BEE-KEEPERS.

A PROPOSED 8-FRAME CHAFF HIVE; 8 VS. 10 FRAME L. HIVES, AGAIN.

Mr. Root:—Now that your great rush of business is over, and you have had a little time to rest and cultivate charity toward those that want "irregular supplies," I wish to make a suggestion of two, which I hope will result in adding a new(?) hive to the regular list.

First, let me say, in commendation of the chaff and Dovetailed hives, that, for the class of bee-keepers for which they are fitted they are the nearest perfect of any thing on the market. If we classify bee-keepers according to their method of wintering, considered in connection with the kind of honey produced, whether comb or extracted, we shall have the four classes suggested by the following headings:

1. Indoor wintering, comb honey.
2. Indoor wintering, extracted honey.
3. Outdoor wintering, extracted honey.
4. Outdoor wintering, comb honey.

The verdict of the leading honey-producers seems to be, that, for the production of comb

honey, the brood-nest should contain eight S. frames; and for extracted honey, ten. I believe this verdict is concurred with at the Home of the Honey-bees.

Upon the subject of outdoor wintering, there may be some diversity of opinion as to the superiority of the chaff hive; but there has been no uncertain sound in regard to the matter in the editorial teaching of GLEANINGS, as we have been repeatedly advised not to winter bees out of doors in Simplicities, but to lift frames and all into chaff hives.

Little has been said in regard to the wintering qualities of the Dovetailed hive, even by Ernest, who has been so enthusiastic over it in other respects. The senior editor has stated quite unreservedly, that he regards them inferior to Simplicities as a protection against cold, wind, and rain.

Now, the requirements are met for those that produce comb honey and winter indoors, by the eight-frame Dovetailed hive; for those that produce extracted honey, and winter indoors, by the ten-frame Dovetailed hive, and for those that extract and winter out of doors, by either the one or two story chaff hive; but according to your own teachings you make no hive that is adapted both to the production of comb honey and for outdoor wintering. I think I am safe in estimating that four-fifths of the ten thousand bee-keepers that subscribe for GLEANINGS belong to this unprovided-for class, and that they keep a larger number of colonies of bees, and produce more tons of honey, than any of the other classes—I was about to say, more than *all* the other classes.

If one of this class were to send you an order for hives suited to his needs, he would be charged extra for being "irregular;" and if during the busy season, he would be unable to get them at all.

All the preceding remarks have been only preliminary to the following suggestion: That the committee which designed the Dovetailed hive be re-assembled, and requested to give us an eight-frame one-story chaff hive that will take the eight-frame Dovetailed furniture above.

If this suggestion meets with favor, I should like to say something additional to the committee before this new(?) hive takes its final shape. W. A. KING.

Marysville, O., Aug. 16.

Your classification of bee-keepers is very good; and while we have not yet hit the fourth class, as you suggest, directly, we have had it in mind; and the "committee," as you are pleased to call it, has been talking and arguing on an eight-frame chaff hive—that is, something that will be cheaper than our regular ten-frame, and yet answer the purpose fully as well. We have been experimenting along this line, but as yet have not said any thing in print, because it is better to test new things at the Home of the Honey-bees than to have beginners all over the land try something that we *think* may be all right, and yet which may ultimately prove after all a failure to them. Well, perhaps it will do no harm to tell what the eight-frame chaff hive is that we have in mind. Hundreds of bee-keepers have the eight-frame Dovetailed hive, and they may take a notion to winter outdoors either a half or all of their colonies, because the cellar, if they have one, is too damp, or because some other condition is not right. They have the hives on hand, and desire to winter outdoors. Now, how shall we fix them up? If it is practicable, and subsequent experiments justify it, we propose putting on the market a winter case made of ⅜ lumber, dovetailed at the corners. This case will be ¾ inches deeper and larger all round than the eight-frame Dovetailed hive, and it is to have a tin-roof cover. By dovetailing the corners we find we can make it of much lighter lumber, and we are also able at the same time to dispense with corner-posts. Well, this winter case, or cap, is to be set directly over the regular eight-frame Dovetailed hive, and is deep enough so that the edges can be pushed down into the sand or sawdust around the hive. We then virtually have a double-walled hive, with a dead-air space, so called. This air-space will be sufficient for moderate climates; but for colder regions, possibly even for the locality of the Home of the Honey-bees, we shall be obliged to use additional packing. To accomplish this, we make a cushion in the form of a ring, just large enough to put around the eight-frame Dovetailed hive, and another cushion on the cover. The case would be then just large enough to slip over the whole snugly, and crowd down into the sand or sawdust, as before mentioned. The expense of the case, when put on the market in lots of 100, would be about 35 cents each in the flat. As the chaff, or some absorbent, can be obtained cheaply in most localities, each bee-keeper can make for himself the cushions he would need. Now, please bear in mind that we have tested a similar arrangement only one season, and on a rather limited scale. While it was successful last winter, the weather was too warm to prove any thing. This will make the cheapest double-walled arrangement ever before offered in the market; and if successful, I do not see any reason why it should not supersede all other more expensive double-walled hives, because it can be so readily adapted to eight-frame hives already in use, that have no projecting porticoes.

You say, friend K., that even GLEANINGS will admit that a ten-frame hive is better for extracted honey. While we did so, the junior editor wishes to argue now for eight-frame hives exclusively, both for comb and for extracted honey. Perforated zinc, when placed over a brood-nest of eight frames, *promises* to work a revolution. Read what L. E. Mercer said on page 674, last issue, in regard to the proper size of a brood-nest in connection with perforated zinc. If we can force a queen to fill eight frames of brood below, by the use of the zinc, let us have the use of the upper story for extracting combs. Mr. Mercer says, and our own experience, and the experience as well of thousands of bee-keepers, goes to show that, as soon as the queen has filled seven or eight frames, she will, unless restrained, go above and lay. I believe that intelligent bee-keeping of the future, with eight frames, Langstroth size, will

rear all the bees that will be necessary for a good rousing colony, provided that those bees are reared *in time* for the honey harvest. This is a fruitful theme, and we trust that our subscribers will thoroughly discuss it. Let some of those California bee-kings—that is, those extensive extracted-honey men—give us some hints. ERNEST.

In addition to what Ernest has said above, I wish to touch upon another point. I do not believe that any hive will ever become popular that is made with the intention of removing the packing or winter covering in summer time. After you have once protected a hive suitably for wintering, do not think of removing the protection in the summer time. The bother, complication, loose pieces, litter, etc., is too much, especially where hives are handled by the hundreds or thousands. Sooner or later, putting on packing will be neglected, and a great many times it will be off at the very time it is needed. Ernest's talk about 35 cts. reminds me somewhat of my visions of cheap things years ago. Make your protection in the shape of something good and substantial. Have it painted, and nice; and if you do this, it will come pretty near a chaff hive made a little smaller, with the view of having only 8 instead of 10 combs in the brood-nest. Many thanks, friend K., in regard to the "committee." Where so much is at stake, it needs a *committee* of the best bee-men the world affords. Where hives or fixtures are made by machinery, in carload lots, they ought to be made *right* if it is a possible thing to have them so.

AN ARTESIAN WELL IN SOUTH DAKOTA.

ARTESIAN WELLS IN GENERAL.

Our readers need hardly be told that every thing in the line of springs, underground water-courses, and especially artesian wells, have a special attraction for me. A few days ago, when one of our correspondents sent me a photograph containing the view above, I almost felt as if I *must* take a trip to Dakota to see it; and I would very freely give the amount of money needed if I could be spared at this time to see this wonder of nature.

Below is what our friend tells us about it:

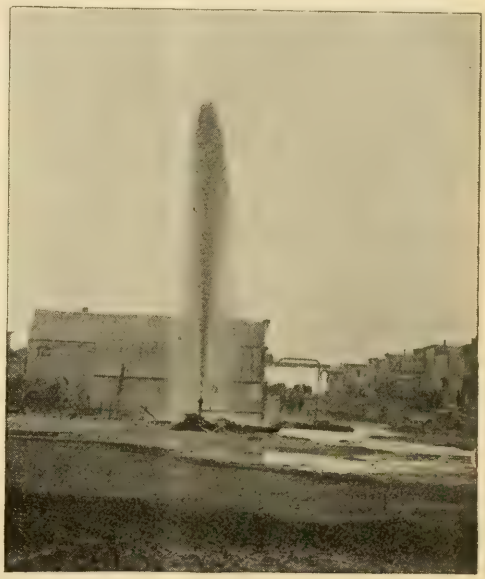
I send you a photograph of one of our artesians, thinking you would like to see it; and if you would like, I will send you some of the specimens which it throws out. It will throw a 6-inch stream 24 ft. in the air, and a 4-inch 71 ft. The 4 is the one they use for fire. It will throw a 4-inch stream 100 feet without spraying. J. W. CHAPIN.

Winfred, Lake Co., S. Dak., Sept. 1.

In addition to the above, we find printed on the back of the photograph the following:

Depth of well, 725 feet; diameter of bore, 6 inches; conservative estimate of pressure, 175 to 200 lbs. per square inch, and discharging every minute over 4000 gallons of water. It is conceded to be the artesian wonder of the world.

By looking closely you will see a pool of water that has collected round about the well. Judging from the buildings, we suppose the smaller jet was screwed on when the picture was taken. By all means, friend C., send us some of those specimens. We have a curiosity to know what is down in the ground where these subterranean waters come from. Four thousand gallons of water would be a hundred barrels of about the size of an oil-barrel, every minute. Just think of it! This water, if all utilized, should irrigate almost a whole county. Friend C., will you



WOONSOCKET'S FAMOUS ARTESIAN WELL.

please tell us how deep they had to drill for it? and have there not been other wells drilled in that vicinity, to see if the same subterranean supply may not be touched from other localities? Is it really the largest artesian well in the world? Perhaps the readers of GLEANINGS can kindly enlighten us. One reason why I ask is because such wells are really of more value than gold-mines, providing the flow is permanent, and I believe it usually is. You see, I have a little one of my own. It runs only 50 barrels a day, and it won't carry the water over 18 inches high; but still I feel very happy over it for all that. It is away down in the creek bottom, where it is difficult to utilize it; but if the water would rise only three feet instead of half that much, I could send a part of it up to the factory by a hydraulic ram. The springs scattered all over our land should be utilized. Spring water is too valuable to be allowed to go to waste.

SOME EXTRACTS FROM FOWLER & WELLS' WATER-CURE MANUAL.

THE GREAT "SECRET," OR "DISCOVERY," COPYRIGHTED IN 1847, AND PRINTED IN 1850.

I wish all readers of GLEANINGS and the *Microcosm* would put your articles on the subject, and this reply of Dr. Hall's, side by side, and then decide which shows the spirit of an honest, Christian gentleman.

My sympathies are with you, because I believe the principle on which you acted in this matter is right, and that your motive was purely unselfish; so I take great pleasure in sending you some extracts copied verbatim from an old *water-cure manual*. The book referred to is "The Water-cure Manual," by Joel Shew, M. D., copyrighted in *1847*, printed by *Fowler & Wells in 1850*. Speaking of these injections Dr. Shew writes:

"They may be repeated again and again, in as great quantity as is desired. . . . A good mode, too, is to take a small injection, a tumblerful, more or less, that is retained permanently, without a movement before morning. This is very soothing to the nervous system; aids in securing sound sleep, and, by its absorption in the coats of the bowels, dilutes acrid matters therein, tonifying and strengthening likewise those parts, and aiding materially in bringing about natural movements."

After naming various diseases for which this remedy is invaluable, he says:

"This statement will cause sneering, I know; but it is no fancy sketch. The thorough washing out, so to say, of the lower bowels, by which the peristaltic, or downward, action of the whole alimentary canal, is promoted, and by the absorption or transudation of water its contents are moistened and diluted, and the whole of the abdominal circulation completely suffused by that blandest and most soothing of all fluids, pure water. Whoever understands well the sympathies and tendencies of these parts of the human system will at once perceive the truth of what I affirm."

Let me add: Whoever reads this can at once perceive the truth of what you affirm: viz., that Dr. Hall has simply revised one of the old methods of water cure, and has no business to call it a "secret" or "discovery," or to sell it as such. E. J. BAIRD.

Island, Pa., Sept. 11.

Many thanks, my good friend B. Since you mention it, I remember now that water cure was one of my hobbies when I was only eleven years old. Soon after, I bought the book you mention, of Fowler & Wells; and when I first saw Dr. Hall's discovery there was something strangely familiar to me about it; but as it was toward forty years ago, it is not much wonder that I had forgotten where I obtained my information. When about ten years of age I was a very weak, puny, feeble child; and a traveling lecturer on phrenology and water cure gave me my first ideas, and started me in daily bathing. I distinctly remember this: That in two or three months I astonished the whole family by taking a pail of water from outdoors, breaking the ice, then washing all over in the ice water, without feeling any more unpleasant than you do, my friends, when you wash your face in ice-cold water. After my bath, the new doctor prescribed walking a mile before breakfast. Luckily we had a cow pasture just half a mile away, and that fixed it just right. I was appointed to fill the post of driving the cow home before breakfast. I hardly need tell you that, under the influence of the daily baths and morning walk, I soon developed a degree of health and vigor that I had never known before in my life. I think I read the book through several times; but, of course, I did not pay very much attention then to the matter of water cure by injections.

MAMMOTH PEAVINE CLOVER.

ALL OTHER SOURCES OF NECTAR PRACTICALLY A FAILURE DURING THE PAST SEASON.

The honey harvest is over. My crop is gathered and marketed. I have sold my comb honey at 16 cts. and my extracted at 13. Nearly all my comb honey, 2000 lbs., was obtained from my Bronson apiary, numbering 60 colonies. That apiary is located where the bees have access to probably between 300 and 400 acres of mammoth clover, and the honey was nearly all obtained from that source. Every year furnishes me with additional proof that the mammoth, or peavine clover, is the best honey-plant we have on the Western Reserve. My home apiary, which is located about 5 miles north of my Bronson apiary, did not average 5 lbs. to the colony—only ⅛ as much as the Bronson apiary.

I wish to call your attention to an invention of my friend H. R. Boardman, which I think is of more value to the bee-keeper than any other invention pertaining to our business which I have seen or heard of in a long time; and that is, a solar wax-extractor. I purchased one of him about six weeks ago, and it does the work perfectly for which it was intended. The wax is extracted from old combs readily, and without any waste whatever, with less trouble than it would be possible to extract it any other way.

BOARDMAN'S SOLAR WAX-EXTRACTOR, AND ITS EFFICIENCY.

I think any man who has 50 lbs. of wax to extract, a year, would save the price of the extractor in two or three years by using one. I think you will do the bee-keepers of this country a great favor if you will get of friend Boardman a complete description of his extractor, and publish it in GLEANINGS. I don't know whether he intended to have his invention patented or not, but I think not.

My whole crop of honey, both comb and extracted, will amount to over 4000 lbs.—not a very heavy crop, but pretty fair for this year. If I had not sold, I could now sell my comb honey at 18 cts. S. F. NEWMAN.

Norwalk, O., Sept. 19, 1890.

Friend N., you have given us just the kind of report in regard to the peavine clover we have wanted. Now, then, it is pretty certain that bee-keeping can be made to pay wherever this clover can be introduced by the hundred acres; and that is the way to raise any honey-plant so as to make it really practicable. Another thing, the quality of the honey will be equal to any in the world. All that is necessary is to introduce it and furnish a sufficient inducement to the farmers round about you to grow it largely. Terry's teachings will probably dovetail in, to the mutual advantage of both the bee-keeper and farmer; and, to sum it up, we may say clover is the rock-bottom of success, whether

you wish to raise honey, potatoes, or strawberries. I am really glad to have you give friend Boardman such a recommendation. Now, friend B., tell us all about this wonderful invention, and whether you have them to sell, and at what price. It can not be that they cost very much, if it will pay a man to have one who produces only 50 lbs. of wax a year.

ERNEST'S NOTES OF TRAVEL AMONG THE BEE-KEEPERS OF YORK STATE.

AT JULIUS HOFFMAN'S; THE HOFFMAN FRAME, ETC.

After bidding good-by to our friends the Van Deusens, we started on our journey again, Mr. Elwood driving, and I hanging on to the bicycle at the back of the seat. Whenever we struck a rut or hole in the road, it gave my arm a good jerk. It may have seemed somewhat of an anomaly to passers-by for a bicycle rider and his wheel both to be carried in *a wagon*. It was not because the wheel would not carry me, nor because the country was hilly and rough, but that we might have an opportunity of visiting together as before mentioned. I am afraid if it had been possible to carry my friend Elwood on the rear of *my* vehicle, folks along the road would have stared even more than they did, for our Starkville friend weighs more than 200 pounds.

As we went over the roads, I noticed in this hilly country that the effort of late years had been to *avoid* hills rather than to go straight *over* them. Although somewhat paradoxical, many times, the longest way to a point among these hills is the shortest. The early settlers formerly made their roads go in a bee-line over the hills, or very nearly so. The result was, there were some terrible climbs for poor horses. But later generations discovered that they could make better time by going further and *around* the hills.

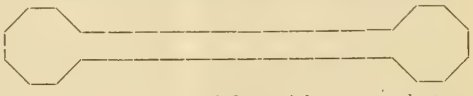
As Mr. Elwood was to take a somewhat different route than the one he had before taken, he had to make inquiries along the way. The point we wanted to reach was the home of Julius Hoffman, two or three miles out of Canajoharie. We noticed on this journey what I had before and have subsequently observed, that residents along the roadway very often have very crude ideas as to distances. For instance, we would inquire of some old rustic how far it was to the next town. The reply would be (we'll say), "Five miles." After having traveled half an hour, on the right road, perhaps our next informant would say that it was six miles. It was perfectly evident that one or both (probably the first) must have been wrong.

After driving along in this sort of way we finally came to within a respectable distance of Canajoharie, which used to be the old home of the *Bee-keepers' Exchange*, a monthly bee-journal edited and published by J. H. Nellis, later by Houk & Peet. It was discontinued in 1883. If I remember correctly, Mr. Nellis is still located in Canajoharie, though not now a bee-keeper. If we had had a little more time I should have liked very much to call on him and exchange greetings, in view of his past services as a bee-keeper and a bee-keeping editor. I have a kindly sympathy for all this latter class of people, especially as we know somewhat of the trials of publishing a bee-journal.

We did not go to Canajoharie direct, but made a short cut directly to Mr. Hoffman's home. Mr. H. formerly lived at Fort Plain; but lately he has been located as above. On arriving at the place we found a very pretty residence, and a general appearance of thrift. Not knowing exactly the date when I should be at Mr. Hoffman's, and not having written him, I was a little uncertain whether I should be able to find that gentleman at home; but fortunately we found him there. He is not as old a man as I expected to see. We found him to be an intelligent and progressive bee-keeper, an energetic representative of his "fatherland," Germany. After dinner we went out into the home yard. I told Mr. Hoffman that I was anxious to see him handle those frames.

THE HOFFMAN FRAME.

He handles his frames—the Hoffman, before described in these columns—with rapidity and ease. While he did not remove and replace them any more rapidly than Mr. Elwood did his closed ends, I am sure he manipulated them in less time than most of us would the hanging frame. In former years he tried the hanging frames thoroughly; but as he could not handle them rapidly enough, and they were never ready for moving, he adopted the Berlepsch top-bar, something after this pattern, and subsequently,



if I remember, widened the end-bars near the top, making what is generally known through this section of the country as the Hoffman frame. Here was a bee-keeper who had 500 or 600 colonies, and I think he uses only one assistant, and him only part of the time. He attributes the reason why he can run so many colonies in several different out-apiaries, practically alone, to the fact of his using fixed distances. He would open up a hive, unloose the follower, and then he would pick up five or six frames at a time, put them down by the side of the hive, and perhaps the next frame we picked up would have the queen. Then when he got ready to close the hive he would pick up all the frames that were leaning against the hive, and insert them back in their place simultaneously. With his two thumbs on the outside top-bar he would crowd all the rest of the frames together.

One of the reasons why Mr. Elwood and Mr. Hoffman, and all the rest who use fixed frames, economize in time over those who use hanging frames, is in the final spacing. It is true, both use a knife or a screwdriver to start the frames; but I noticed that Mr. Doolittle with his hanging frames also uses one; in fact, so do all who use hanging frames on wood rabbets. As to the propolis sticking the closed ends together, so as to make the manipulation difficult, that is more in theory than in practice. Like Mr. Elwood, Mr. Hoffman could get his colonies ready to move on short notice. He had an ingenious wire-cloth button, so arranged that, by turning it, it closed the entrance with wire cloth, and, in less time than it takes to tell it, he could fix up any of his colonies ready to move to an out-apiary.

Mr. Hoffman runs for extracted honey only; and as he has produced tons of that article, I took occasion to ask him about extractors. He had been using a Stanley automatic reversing machine. While not altogether pleased with it, he thought there were a number of good features about it. He prefers something of his own design. This, if my memory serves me rightly, is a four-frame non-reversing extractor. I think he has used a Novice machine, but considered its capacity too small for his work.

After we had looked around awhile through the honey-house and the apiary we went into the house. Mr. Hoffman is an intel-

ligent, progressive German. It was very evident that he is well versed in all German bee-literature. He spoke of Berlepsch and one or two others who advocated 1¾-inch spacing. As he could not then refer to the authority at the time of my visit, at my request he prepared the article that appeared on page 673 of our previous issue. As usual, I explained that my time was limited and we should have to be moving. After hitching up we bade our friend good-by and started on the road again.

SHARON SPRINGS.

The next point we reached was quite a celebrated pleasure-resort, as above. Many were there, both for pleasure and for health. I do not know that I should object very much to spending a few days here myself. Our time was rather limited; and after driving hurriedly about, Mr. Elwood stopped in the rear of a large hotel, and asked if I should like to step around in front of the structure. I did so, and, presto! one of the most magnificent views of the Mohawk Valley was spread out before me. Miles and miles of territory were to be seen off in the distance. Gently curving this way and that was the Mohawk River. On the right and left, as far as the eye could reach, were those beautiful hills. Distance lends enchantment to hills to a bicycler. I wish I had the language to express the emotions that came to me then. I am not at all poetic; but our stenographer comes to my aid by quoting the words of the old song:

Sweet is the vale where the Mohawk gently glides
On its clear winding way to the sea.

I am very sorry indeed that I could not have uttered that on the spot; but, as Mark Twain says, we do our thinking after we get home. After feasting my eyes, I went hurriedly back to where my friend was holding the horses. I suppose he thought I was in an "awful sweat" to get off on the wheel again; but the fact was, Mrs. Root was expecting me next day; and I knew that, if I did not arrive at Durham on the mountains, where she was visiting with friends, at just the appointed hour, she, like a good many other mortals of her kind, would worry. Much as Mr. Elwood had carted me about, he insisted on carrying me over the first big hill. As I came to bid him good-by, it was with some feeling of sorrow. Our Starkville friend is a man with whom I feel it an honor to be acquainted. He is not only an extensive bee-man, but he is progressive, and thoroughly alive to all that may benefit his brother-man, whether he be a bee-keeper or not. He is modest and somewhat reserved, and at first not very communicative, but has a loving heart when you come to know him. Before and after my very pleasant visit I found all along my journey that bee-keepers generally hold him in very high esteem, and I do not much wonder at it. It was not my pleasure to meet Capt. Hetherington, one of his most intimate friends; but I covet the pleasure of seeing him some time.

A FEW STRAY BITS.

Just at this point I recall that my mother and my better half remind me that I have made no mention so far of bee-keepers' wives. Just you wait, dear readers. There are so many things that I want to say that it is hard to crowd 'em all in at once.

Another thing that I am reminded of, is, that these stray rambling thoughts may subject the bee-friends whom I visited, to an unusual amount of correspondence. If I have not been explicit in details I would beg our subscribers to write to this office, rather than to the gentlemen I have mentioned. Most of them are extensive bee-keepers, and their time is quite fully occupied; and when we do get any correspondence at all from them, it ought to go, not to one individual, but to thousands of readers.

I am reminded, also, that, from what I have said about this section of York State, a few perhaps prospective bee-keepers will consider the propriety of moving into these localities. Allow me to say that they are pretty well occupied by bees already; and if any one thinks seriously of locating among these hills, he will have to buy out some bee-keepers already in possession of the territory, if he wishes to be honorable about it. Elwood has 1300 colonies; Capt. Hetherington 3000, probably more; Mr. Tunicliff, Mr. Smith, and one or two others, have perhaps among them another thousand colonies. I noticed that these out-apiaries were just as thickly crowded in as they could be and not overlap each other's territory. While I am quite firmly convinced that this is one of the finest bee-countries in the world, I do not wish to have the friends who so kindly entertained me have some one else come in with more bees, and overstock the fields. Come to think of it, I am sure no one will; therefore, please excuse me.

These thoughts may seem a little out of place to interject right at this juncture; but if I do not give them here, I am afraid I shall forget to do so.

Well, here we are

ON THE BICYCLE AGAIN.

As we spent a little time in sight-seeing, it was about 5 o'clock when I left Mr. Elwood. I then had about twelve or fifteen miles to make. At nightfall I arrived at ———. I could have gone further to the next town; but as this section of the country was, of course, entirely new to me I did not particularly relish traveling among the hills, unaccompanied, unarmed, and alone. I realized that I had made somewhat faster time on the bicycle than we had when driving. As the place was small it was not difficult to find a hotel, which, having entered, I called for supper and lodging. My heart sank within me, for I saw that it was one of those places where a bar was evidently doing a thriving business. There were bottles and glasses; and while I did not feel at all inclined to patronize *it*, I felt very much disinclined to patronize the proprietor, even for such innocent things as supper and lodging. However, my bicycle was leaned against one side of the room; and after washing I partook of a hearty supper. On returning to the room again I discovered that a number had come in to see "that new arrival" and the wheel. They were mostly local sports, and men whom I judged patronized the bar. They were not altogether choice in their language, and the company was decidedly rough. I very much wished then that I had taken my chances of riding in the dark to the next stopping-place; but there was no help for it then. I would have gone to my room, but I did not exactly like to leave the bicycle to the tender mercies of those chaps. Ere long more came in, and then the drinking began. I fancied they eyed me rather suspiciously. Visions of robbery flitted past my eyes; and then I reflected how foolish I was. I carried but little ready cash, a small check, and a Waterbury watch. They wouldn't touch me, especially if I displayed the aforesaid timepiece. Before I retired, swearing, disputing, and drinking had been carried on to such an extent that I actually feard there would be a fight; in fact, it started, but the proprietor mollified the would-be fighters. I vowed then that I would never stop again in such a place, even if I had to travel all night, unaccompanied, unarmed, and alone, over an

unfamiliar and unknown road. At about ten o'clock the company dispersed, and I went to my room, somewhat disgusted and pained. I did not reprove the fellows for their bad language. Indeed, they were a class of toughs, I might say, whom I did not wish to argue with. It was my misfortune to stop at two or three such hotels; but only in the above case did I remain over night. It was very evident that the presence of liquors cursed the whole establishment. There was always a set of hard-looking customers—men whom I would hardly dare to trust out of my sight. On the whole, however, these wayside hotels were no worse than the average of those in Ohio, if I except the two or three I have mentioned.

Next morning I arose early, refreshed; and after an early breakfast I took a start on the bicycle, about seven o'clock, for Durham, on the Catskill Mountains. I had been informed that there were two or three quite prominent bee-keepers on the route. There were fifty miles ahead of me, over some hills quite as high as those I had gone over, besides the two or three bee-keepers whom I wished to visit. Should I be able to make it all in one day? We'll see. My first point was Cobleskill, a run of about fifteen miles, which I reached in about an hour and a half. It is a very pretty place through which passes a mountain railway, and here I had the pleasure of making the acquaintance of Mr. B. Van Wie. He keeps about 100 colonies. The bees had done nothing for him this season of any account, although they were, at the time of my visit, working pretty well on buckwheat, and he will probably get a pretty fair crop from that source. I was very much annoyed on my bicycle routes by poor and insufficient directions as to the best route to reach a given point. I told Mr. Van Wie that I should have to make my stop necessarily short, as I had a good many miles ahead of me, and wished to reach Durham that day. He very kindly gave me most complete directions. The result of it was, I was enabled to accomplish my journey of 45 miles easily in about six hours, and visited the before-mentioned bee-keepers that day, for which Mr. V. has my thanks. After eating two or three Red Astrakhan apples (oh how good they tasted after my bicycle ride!) and taking a refreshing drink, I took myself to the wheel again.

[*To be continued.*]

GETTING BEES OUT OF SECTIONS OR EXTRACTING-CASES.

BEE-ESCAPES A GREAT BOON TO THE BEE-KEEPER.

On page 555, Aug. 1, Mr. Doolittle writes about getting the bees out of the sections and the extracting supers, and asks for an escape that can be put on at night, and take the sections off in the morning. Perhaps to help him and others, a little experience of my own and of others that I know may help some. The main trouble with all escapes, so far as I know, is the lack of depth of the case to which the escape is attached; and, like some other things, accidental occurrences have given the clew. Without trying to take any laurels from any one, I will tell of the first escape that I ever saw, which was some years ago—I can not tell how many; but it was taken from the old-fashioned cottage fly-trap, and was made from two of the inside pieces. They are 5½ inches wide by 6 long, bound all round with tin, and bent at right angles. They have eight holes, ¾ inch in diameter, made where the wire cloth is bent. Two of these were put into a box with sides and ends about 3 inches deep, which brought the ridge of the wire cloth within about half an inch of the combs in the hive, so that, after a time, the bees would begin to work back into the boxes again. This fixture was used on the old No. 2 American hive, under the old style of King sections; but it worked well unless it was when the colony was very strong, and the last row of sections was to come off; then there was trouble about getting all the bees off from the combs, and many of them would be defaced. Then when Mr. Reese put out his escape, in 1887 (which, I believe, was the first time the subject came out in print), he advocated the double cone, which is a very necessary feature in the successful working of the escape. I knew of perhaps 100 of those escapes being made to be used in 1888, with a varying depth of case from 3 inches up to 8 inches, and with from 2 to 8 cones, with both single and double cones, and this is how they succeeded. In the shallow ones there was a half-inch board used for the base, or dividing board, with a ¾ space above, and the cones were about 2 inches deep, some single and some double, because some of the makers and users knew that one cone was just as good as two. Some of them, the cones were nailed on the under side of the board, and some were nailed on the upper side, and projected through a hole bored for them. Deeper ones were made in like manner, and usually were made from just such pieces of boards as were handy. I made 25 or more myself; and to try them I used various depths from three to six inches, but they mostly were of 4-inch depth. Those that were shallow did not empty the sections as quickly or as clean as the deep ones, and quite often the bees would learn the way up and down when they were left on for two or three days, and the swarm was very strong; but in a trial with three escapes 6 inches deep, and two that were 5 inches deep, that were left on the hive for over a week, not a bee was found in the sections after from two to five hours, which showed that depth gave success.

Now, the way that I found the depth being the clew, is this: I was telling a friend about them, early in 1888. He picked up a board 8 inches wide, and from a strip of wire cloth from seven to eight inches wide we made ten cones by cutting it square and putting five cones on each side of a half-inch board, with three-inch holes. This let the cones have a good half-inch space between, except at the outlet. I saw him again in July, and learned that he could clean a case of sections in half an hour, of every bee. He set the escape crosswise of a hive-body, raised the cover-board from the crate, gave the bees three or four blinding puffs of smoke, lifted the crate of sections from the hive to the escape, and then set both in place again on the hive; then gave a little more smoke, put on the cover-board, and left them. After looking at the other bees a few moments we went back to the escape, took the case of sections to the honey-house, and not 25 bees were to be found in the case. We then looked at the under side of the escape, and found it full of bees. These were jarred in front of the hive, and the cover-board put on the section case below. Besides this deep escape he had them three, four, five, and six inches deep, and with four, five, and six cones; and I learned that his results were like my own—that the cones should not come nearer to the bees in the hive or case below than one inch; that ¾ space above the board was just right; that six cones, bringing the corner ones three inches from the corners each way, and the other two in a row lengthwise, was the best; that not less than a two-inch hole should be used in the board, and a three-inch hole is better; that a double cone is necessary, because, if

a bee on the outside can lick from a bee on the inside, they will learn the way back and forth; that there must be ample room in the escape-case below the board for the bees from the sections to cluster, and oblige them to go down the sides of the case to the hive or sections below, if you want your sections to be freed of bees quickly.

I know, from what I used the escapes in 1888, '89, and '90, that I can have the sections freed of bees so I can handle them three times as fast as without the escape; but I don't want them less than 4½ inches deep, and I like them from 5 to 6 inches deep better. I can handle more honey alone with the escapes, and easier, than I can with a helper without the escapes. Twenty-five escapes are as good as one man to handle 100 colonies of bees when taking off sections.

Milford, Ct., Aug. 14. H. L. Jeffrey.

Many thanks, friend J., for your suggestions. It is only by repeated trials and experiments that we can tell just what bees will or will not do in matters of this kind. Now, inasmuch as you know just exactly what is needed in this matter, can you not make them and offer them for sale?

THE MOLE CRICKET.

ITS HABITS.

The insect forwarded by you from E. W. Hammond, Lima, O., is the mole cricket. As Mr. H. says, it is a curious insect, and it is not strange that he should wish its name and habits. The technical name of this is *Gryllotalpa borealis*. The name *Gryllotalpa* really means cricket mole, which, if reversed, would be quite the truth. It is really a cricket, but is very molelike, as is at once apparent from its front legs. This insect is very common here; but as it rarely comes forth from the earth, it is not often seen. It inhabits low moist ground, and is not infrequently seen or found in cultivating or ditching in such places. All authors say, as did Harris, which the others copy, that it feeds on the roots of grass. In Northern Ohio and Michigan it has been known to eat into potatoes quite seriously, especially when planted on low ground. As the potato is only an enlarged root, it is not strange that these crickets, like the wire-worms, should desire to test their quality.

One year our students took several of these crickets from one of the rooms on the first floor of one of the college dormitories. They fly forth from the earth to mate, and I presume were attracted to this room by a female which had been brought in by the students. If these are plentiful enough to be troublesome, we must plant our potatoes on upland.

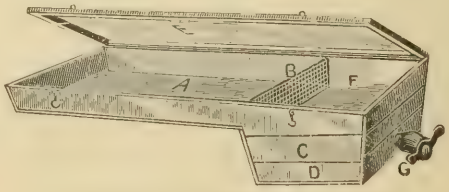
Agricultural College, Mich. A. J. Cook.

SOLAR WAX-EXTRACTORS.

A DEVICE USED BY ONE OF CALIFORNIA'S PROMINENT BEE-KEEPERS.

Nearly every apiary in California has its "sun extractor," as they call them here, to melt up cappings and broken combs; and, so far as my observation goes, they are all built on the same plan and about the same size. It looks as though they were all made after the same pattern, without any thought of improvement. I believe they were originally made to extract combs full of honey before the honey-extractor came out; and, after the honey-extractor came, the same implement was used to melt the cappings. I think, however, that they can be greatly improved for melting cappings, and that is the object of this article. Perhaps you would like to know how the old original California sun extractor is built, so I will describe it first and then give what I think is an improvement.

The box is made of ⅞ lumber, lined inside with tin, and is 58 inches long, 30 wide, 13 deep, outside measure. The glass cover is two ordinary window-sash 9x13 glass. A wooden frame inside, 5 inches below the glass, supports a sheet of perforated tin, the size of the inside of the box. The cappings are laid on this perforated tin, and, when they melt, the wax and honey run through into the chamber below, leaving what Californians call the "slumgum" on the tin above. The wax hardens immediately into lumps of every shape when it gets below the tin, and is always melted over a fire and run into cakes before sending it to market. The honey is drawn off through a tube or molasses-gate in the lower end of the box, and is usually kept for feeding. Is it not a mistake, where the A B C book says the wax is ready for market? and also where it says, "A pipe may be connected with it to run the melted wax into the inside



M'INTYRE'S SOLAR WAX-EXTRACTOR.

of a building"? Taking the wax out of these extractors, and getting it ready for market, is an inconvenient and disagreeable job, because the lumps of wax are all smeared with honey. What we want is something that will separate the wax, honey, and slumgum, and leave the wax in a nice solid cake ready for market. In order to do this the wax must not be allowed to fall in the shade of the perforated tin or zinc and cool off, but it should be kept in the sun until all is melted, when it will cool in one solid cake.

We have been experimenting a little along another line, and find that, if the cappings are laid on an inclined plane under glass, the honey and wax will run down and leave the slumgum on the inclined plane. Now, all we have to do is to have a box at the bottom of the inclined plane, also under glass, to hold the wax and keep it melted until it has all run down, when it will harden in one solid cake. To make a long story short, here is a picture that will explain better than words.

A is the inclined plane, where the cappings are put. I would make it 2 feet wide, 4 feet long, 5 inches deep. B is a piece of wire cloth to prevent any slumgum from running into the

honey and wax receptacle F, which is 2 feet square on top, tapering to 18 inches at the bottom, and 12 inches deep. The flaring sides will allow the cake of wax to be lifted out easily, and the honey is drawn off through the molasses-gate G. The space marked D will be filled with honey, and the space C with wax. E is the glass cover over all. It should be hinged on, and fit tight to prevent the escape of hot air.

Fillmore, Cal., Aug. 18. J. F. McINTYRE.

Your ideas on the construction of the solar wax-extractor—that is, the principle of it—are correct. When I visited G. M. Doolittle I found he was using something on very much the same principle, only, if any thing, it was on a simpler plan. As I took a photograph of it at the time, I will, when an engraving is made, describe it. Yes, the wax should, as fast as melted, run down the inclined plane, and thence into a receptacle also exposed to the direct rays of the sun after thoroughly melting. We propose to modify our solar wax-extractor, so as to combine the features of the one illustrated above, and the one used by Doolittle. Both of you have made some very great improvements in the sun extractor, over the one we have been selling.—E. R.

EXPERIENCES OF THE PAST SEASON.

MRS. AXTELL GIVES US A GREAT NUMBER OF VALUABLE, PRACTICAL THOUGHTS.

Our bees thus far this season have stored but little surplus. The winter being warm they consumed the most of their stores, and came out in the spring strong in numbers; consequently we had to feed largely. The first of May found them almost wholly dependent upon what was fed them. Then came three weeks of cool cloudy weather, and they flew but little; and as Mr. Axtell and I were both feeling so poorly just then we came near letting some colonies starve; and the consequence was, they dwindled instead of increased in numbers just before the honey harvest; but by building up the stronger with brood from the weaker colonies, we had the larger part of our colonies ready for the honey harvest in June. Such colonies gathered from 10 to 25 lbs. of surplus. Those that we left unaided gathered no surplus.

Some 30 colonies that brood was taken from to build up others, have had to be fed since about the first of July, and will still need more feeding.

The drouth has been so severe as to dry up all honey-bearing plants, or nearly so. About ten days ago we had a heavy rain, and two or three lighter ones since, that have wonderfully revived vegetation, causing the little heart'sease there was to branch and blossom out, and bees are gathering a living now. We are hoping our bees will gather enough to winter upon.

THE DIBBERN BEE-ESCAPE.

When we take off our surplus honey, as usual, there are some bees we can not get out very readily. We generally set them in the honey-room on end around on the floor, and let the bees fly to the window, and then pile up afterward. Sometimes we pile them up one super crosswise of the other, and another lengthwise, and so on; but this time we put a Dibbern bee-escape honey-board over a weak colony, and piled up supers six or eight high, and in a few days took them off, and found the bees all gone out, or nearly so, and the colonies nicely strengthened up. Some other weak colonies we did not use bee-escapes upon, but partly covered the colonies, and left one good passageway at one side of each row of sections, and then piled the cases up as high as we could conveniently reach, and thought it was safe, and left them on several days. Those colonies got both bees and the unsealed honey. The bees mostly went out, but not so well as those with the escapes; but it helped the colonies, and did not injure any capped honey. Although it was done at the time of a honey-dearth, scarcely any bees were killed, and I think no queens were killed. I think the latter way of getting out the bees an excellent one, especially if one has weak colonies he desires to strengthen, especially if there are many bees left in the supers. Some colonies seem to cling to the supers more than others, and it takes a long time to get them all out.

BAIT COMBS.

Our bees this summer would have stored but little honey in sections if they had not had bait combs. Many colonies filled only such combs, and put the remainder of their honey into the brood-combs below. Wise little bees! they knew better than their owner what a long drouth was before them.

I certainly would never melt up clean combs in sections, or even bits of new comb that can be fitted into sections. I think there may be a difference in localities. Bees may more readily enter the supers than in other places. It retards swarming if they may be got to work briskly in the supers before they get the swarming fever.

ITALIANS AHEAD.

This spring I noticed that the hybrids entered the surplus cases much more readily than the pure colonies; but the pure ones that did work above, gathered much the most honey. In the body of the hive the pure colonies filled every cell possible—chucked it full—while a few black hybrid colonies were very light in stores. For that one reason alone it pays to keep only pure Italians as far as possible. I am afraid I should feel like giving up bee-keeping if we could get no better bee than the blacks for these poor seasons. Good years it doesn't seem to make so much difference, except in handling. They run provokingly just where one does not want them, while the pure ones stick to the combs quietly; but the blacks must be equally hardy a race of bees as the Italians, or it would not be so difficult to keep them pure.

ARE THERE TWO KINDS OF COMMON BEES?

It does seem to me there is a difference between the black and the brown bee. While at the Aurora Cancer Hospital this spring to have a small cancer taken out my left cheek, the doctor brought home a small colony of large brown bees. The bees certainly did not look so black and shiny as the blacks of our neighbors at home. The colony was so small that I feared he would get no surplus from it this summer, and I never handled a colony of Italians that was more gentle. When working them, through transferring some of the combs and strengthening others, I threw off my veil and worked with both face and hands bare, and got no vicious sting. Only one stung me, and that I mashed. I suppose one reason they were so gentle is, I had good heavy smoke. I told the doctor I wanted some smoke to subdue them with, and he went and got a large stove-kettle and filled it half or two-thirds full of coals and chips, and set it on the side of the hive where the wind would carry the smoke over the bees. He had the colony set on the top of an eastern veranda, close up to a window

where he could watch the bees from a bedroom window, and step out of the window and care for them.

A few days ago I had to return to the hospital, as the cancer did not seem to be wholly eradicated; but I hope it is entirely destroyed now. I found the colony of bees built up into a strong fine colony, and had given something like 20 lbs. of surplus honey, but had not swarmed. It had plenty of brood and honey below in the brood-nest. I think there are not many bees kept in the vicinity where he lives, and I could not find that there was any large bee-keeper in Aurora. As there is a small stream running through the town, there is waste land covered with wild flowers, and it seemed to be a good locality for bees.

THE ADVANTAGES OF ONLY A FEW COLONIES IN A LOCALITY THAT IS NOT FIRST CLASS.

Many poor years that bees do not pay if run for honey as worked by the average bee-keeper, would yield returns, if a person kept only a few colonies and had them all boiling over with bees at the beginning of the first honey-flow. We seldom have a year but that the bees would pay their way, with a small income to their owner, above the cost of keeping, if worked on the above rule; and when a good year came they would pay largely.

VICIOUS HYBRIDS AND YOUNG CHICKENS.

Little black chickens, while very young and downy, ought not to be allowed in an apiary, especially if left to run with the hen, or confined in a coop near a vicious hybrid colony at times of the year when much work is done; but when they get older and feathered out they are very useful to gather up the roaches and moths, as the bees do not seem to sting them so badly as when young and downy. We have never had them bother white chickens, even while very young. We have two young Plymouth Rock cockerels about half grown. When I start down into the apiary they will follow me around from hive to hive picking up roaches, as there are a good many in our apiary this year. They will pick a roach out of a lot of bees that are shaken off upon the ground, so quickly that I don't think they get stung at all, and seem to enjoy the fun.

Comb honey is almost a staple article in our little town, while twenty years ago one had to work hard to sell it all. Now the principal groceries and stores all keep it the year round, if they can get it.

Cut-out honey looks very nice if cut out in square chunks and set up on edge in a circle around the outside of a new tin pan, and then the center filled in; and quite a quantity may be laid on top, and all covered over with a glass cover, such as are used at restaurants and lunch-rooms to cover cakes and pies with. One groceryman sold more for us of extracted than three other stores in sections last winter; but it was the *man* that sold the honey, rather than the shape it was in. In winter, cut-out honey will sell readily without a cover. As soon as it gets to looking mussy, and the unsealed and liquid honey candies, we take in a fresh panful, and buy back all that was left in the pan.

In leaving honey in stores, especially in the warm weather, the cover should fit so closely that dust and flies can not get in, else it becomes unsalable in a short time, and grocerymen get disgusted with it, and do not care to handle it. Sometimes bees, also, find it if not tightly covered, and soon fill the grocery so that people are afraid to enter, and so the groceryman loses trade for an hour or two, and concludes that handling honey won't pay. When bees get to entering a grocery they hang around the door. Such was the case some years ago in one of our grocery stores in Roseville, where we had our honey.

CHICKENS OR BEES, WHICH?

In looking over a back number of GLEANINGS the question is asked, "Which pay best?" We should say, "Bees, in the long run, counting several years together." Poultry is usually a source of profit every year; and every month in the year, with careful handling, it might be made to be profitable; but when we do get a good year for bees they are very profitable, and bring in a large income—so much so we see many people attracted to the pursuit only to give it up, perhaps the next year, in disgust. So it is those who have perseverance that make bee-keeping pay best; and then I think we get too many bees in a neighborhood, especially where all waste lands are tile-drained, as is the case here.

A SWARM OF DRONES.

Last summer, between four and five o'clock, while I was still out in the apiary watching for swarms, I heard a loud humming of bees just above my head. I looked above me, and all about me was a swarm of drones. Scarcely any workers could be seen among them. They flew round and round in a circle some ten minutes or so, and then all at once seemed to scatter, not settling like a swarm.

IS EXTRACTED HONEY INJURED BY BEING STORED IN OLD BLACK COMBS?

Why would it not be a good plan, when desiring to use old combs for extracted honey, to bleach them somewhat by filling them with water and letting them stand a few hours, and throw out the water by extracting them. I did so at one time with a few combs, and the water thrown out was nearly as dark colored as coffee. If the water would be colored by dark comb, I should think honey also would be.

WINDBREAKS FOR BEES.

I don't think we sufficiently value windbreaks for bees. If wintered out of doors they are invaluable. We could see a great difference in the loss of bees in wintering just as soon as we had erected a high board fence, 7½ feet high on the east, west, and north side. It does not make the apiary much warmer in the summer, as we feared it would, because, in hot weather, the wind nearly always blows from the south or southwest or southeast, and then it blows into the apiary. If it blows from the north or northwest or northeast, generally the weather is cool, and it makes no difference if it does not blow into the apiary. If the bees are wintered in the cellar, and are set out upon their summer stands with a windbreak, even if packed with chaff the wind pierces the cracks in the hives, and chills brood in small colonies, while the bright sunshine at the entrance invites the bees to fly, and the cold wind so chills them that they never return.

Ernest mentioned, last winter, that he had no trouble in keeping his 40 colonies of bees cool enough in his cellar; but if he had added 40 colonies more, he would have seen a great difference in temperature; and if he had made it 150, even if the cellar were as large again, he would have seen it almost impossible to keep them quiet such a winter as the last.

With proper windbreaks, bees may be taken from the cellar very early in the spring, and set on summer stands, and do even better than left in late, especially where there are many bees left in the cellar. The remaining ones will do better also. We choose that part of the apiary where the winds are broken off by buildings, to set out our first colonies, and lay on top of the hives an extra quilt, and lean up against the front of the hive a board on cool days.

Colonies taken out the first of March will need from 5 to 10 lbs. of honey per colony to spring them, more than colonies left in the cellar until the middle of April; but they will be stronger colonies the first of June if they are provided with that much more honey, and properly protected from high winds; and being stronger colonies they will gather more than the 5 or 10 lbs. of honey per colony, more than the ones set out later.

It seems to me it might be easily tested whether colonies of bees gather more honey or less, by having their queen taken from them or caged during the honey harvest or swarming time, by placing several colonies upon separate scales, one half by having the queen removed or caged, and the other half retaining their queen.

BEES DYING IN JUNE.

Just after the first few days of honey-gathering from white clover, the first of June we had three days of high winds. On the third day, and for several days thereafter, our bee-yards were literally strewn with dying bees. A few fair colonies were reduced to one or two combs of bees. Two small colonies lost all but the queen and a few young bees—not enough to cover a comb. Strong colonies did not seem to be affected in the least. We could not think what could have caused it. If it had been the wind alone, all would have been alike affected. We concluded it was the large honey-flow. The few old bees in the hive, finding they had a great amount of brood and young bees to labor for, actually worked themselves to death, and could not withstand the high winds.

Roseville, Ill., Aug. 23. MRS. L. C. AXTELL.

Why, my good friend, you have given us a wonderful array of practical thoughts and suggestions; but it throws a shade of sorrow over it all when we learn that you are afflicted with cancer. May God grant that the hospital you mention may have skill and wisdom to fight successfully against the dread disease.

You say the colonies, from which you took brood had to be fed about the first of July. Now, are you sure that those which *received* the brood were benefited enough more to pay?

We have practiced the very plan you mention in regard to getting bees out of the supers, by setting them over a weak colony; but we never noticed that they could be made to take out the unsealed honey. I think that, perhaps, unless the honey were removed at just the right time, they would be quite apt to take some of the *sealed* honey also.

The testimony in favor of bait combs seems to be pretty conclusive; but is it not true that some sections that have perhaps been tried one or two seasons became obnoxious to the bees? I know that we had some that we put on year after year in time to get them full. The bees would fill new ones containing foundation; but these old ones were finally thrown away. They were of different pattern, so we recognized them at sight.

Are you not a little severe on the hybrids because they do not keep enough honey in the brood-nest for wintering, as the Italians do? Many of our large honey-producers would be glad to have every drop of clover honey put in the sections. Of course, they would have to keep watch of colonies that do this, to prevent them from starving; but I think it would pay well for the time required.

Although you do not say so, I presume the brown bees mentioned are found somewhere in your State of Illinois. Now, if there is really a difference, why were they not crossed and recrossed years ago? I can hardly think it is any thing more than accidental. I have seen some colonies of blacks that were very gentle; and I have seen them, too, that were brownish colored instead of black. Where great numbers of young bees hatch out at once, when they become of the right age they have a much brighter look than older bees.

We have never known bees to sting chickens, but it has been reported once or twice.

Your remarks about looking after the honey at the groceries are excellent. In no other way can a honey-trade be built up.

Your suggestion, that *tile draining* is bad for *bee-keepers*, is a big point in favor of good farming, even if it is bad for the honey-crop. Our farmers who raise weeds will take the hint.

Your suggestion, that old combs *may* color the honey, is a good one.

We agree with you in regard to windbreaks.

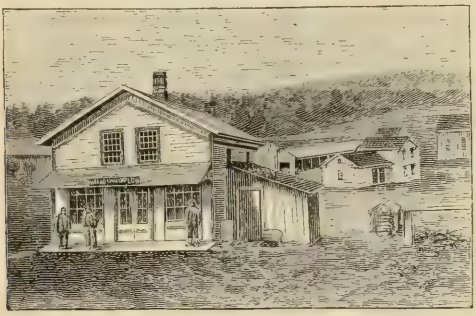
In regard to bees dying in June, so many such reports have been received we think there must be something in it besides a lack of stores. I have sometimes thought, as you state it, that the labor demanded by the growing brood is so great as to wear out or kill the nurse-bees by overwork. Is it not strange that bees, with their wonderful instincts, should so many times behave themselves much as human beings do?

RAMBLE NO. 29.

STEUBEN CO.

Haskinville is a town in Steuben County, noted for its wooded hills and fossil rocks. One is more impressed with the grandeur of the scenery as we enter the county than we are after we get in. The borders are cut up with deep winding ravines and picturesque glens—just the county for camps of brigands. But our traveling companion was a very honest-looking young man, and we trusted to his guidance. Our team waded patiently through the mud, and at last reached the enterprising village of Haskinville. The enterprise all seemed to be centered in one store conducted by George and Ziba Silsby, and a little Wesleyan church, conducted by Rev. Mr. Clow. We found the Silsby Bros. working heart and hand with the minister, and evidently having a good influence in the community. They seemed to be very conscientious in their dealings, and kept nothing that savored of alcohol, and had even stopped the tap at the little hotel near by. After considering the influence that tobacco has upon the cleanliness and morals of people, they had also thrown up a good trade in the weed, and seemed to be making a good living without its revenue. It was no little wonder to us to find them holding the postoffice, and dispensing the mail under a Republican adminis-

tration, when they are both ardent Prohibitionists; but we believe these young men will not lower the standard of principle, even if they do get turned from office.



SILSBY BROTHERS' STORE.

We saw here for the first time in many weeks the familiar face of GLEANINGS at the residence of Henry Sprague, who is a veteran in the bee-business, having now about sixty colonies. Mr. S. uses a side-storing hive, but was not satisfied with it, and was studying the Dovetailed hive and a non-brace-comb wide thick top-bar, with a view of adopting them. His experience with very narrow top-bars had given him much trouble by bees filling up between with not only brace-combs but with great daubs of comb and honey. Sixty colonies was the limit of his field. Extracted honey was raised to some extent, and thrown out with an old-style Gray & Winder machine. His Bingham smoker was an ancient one, twelve years old, and good for a few more puffs. Cellar wintering is practiced; and while most bee-keepers put clean sawdust upon the cellar-bottom, Mr. S. had a good depth of straw. We concluded, all to ourself, that he had an excellent material for mice-nests, and we kicked around rather unnecessarily to wake 'em up, when, "dunder and blixen!" how we did commence to sneeze!

The grip was the main occupation of people generally just then. We had heard of some very sudden attacks, but had thus far escaped; but we thought we had it sure this time. We had relied upon a large chunk of camphor as a sure preventive, and got it to our sneezing-apparatus as soon as possible. This prevented further external explosions; and while we were allowing the internal feelings to subside, Mr. S., who had followed our sudden exit from the cellar, said I was afflicted with cayenne pepper instead of the grip.

"Cayenne pepper!"

"Yes. That straw you kicked around so is sprinkled full of cayenne pepper. I put in straw and pepper every fall to keep the mice out. If they get into that straw they sneeze just as you did—ha! ha!—and get out about as fast as you did."

WILLARD COLLINS' BEE-HUNTERS' CAMP.

We found Mr. S. and family also earnest workers in the aforesaid Wesleyan church, and a family of influence for good in the community.

Willard Collins is another young bee-keeper in this town, and it was in the large forest near his father's residence we photoed the bee-hunters' camp. Will, with the ax, has his eye on a bee-tree, and the other fellows are ready for a slice of bread and honey. These forests are filled with just such trees as bees delight to live in.

Ira Bowen, of the town of Fremont, the honest-looking young man who conducted the Rambler safely into this region, is also a bee-keeper, and a keeper of a maple-sugar bush. The family is sweetened at both ends of the season, and, of course, they are sweet the year round. The Rambler was fed on maple in all shapes, and believes that Steuben County can produce a product equal to or even superior to all others. Ira uses the L. hive and packs with straw outdoors; and, though having a small apiary, he has been successful with it. His sister Alice helps to a certain extent, but it is mostly advice, for her first experience and attempt at hiving bees gave her a severe lesson as to the deceitfulness of the busy bee. Ira and the boys were busy on a remote part of the farm, when a swarm of bees came out. "Now," says Alice to her mother, "is my opportunity. This is the chance of my lifetime to show what women can do with bees. The *Chautauquan* says that bees will alight every time on an elevated mullein-stalk."

Obtaining one she held it aloft among the bees, but they gradually drifted around the corner of the house, out of sight. She held on to the mullein, however, for half an hour, more or less, thinking they would come back in good Chautauquan order. Of course, her arm pained her not a little; and, being an experienced schoolteacher, her heart went out in sympathy to those refractory urchins she had punished by making them hold up a stick of wood. Her reverie was, however, broken by her mother calling from the window, "Why, Alice, what are you holding that mullein-stalk up there for? The swarm has gone back into the hive long ago." That mullein-stalk was dropped like a hot potato, and Alice now believes there is nothing but deceitfulness in the busy bee, which opinion is shared in, more or less, by the

RAMBLER.

DID THE BEES STEAL THE EGG?

TWO OLD QUEENS IN THE SAME HIVE, AND LAYING PEACEABLY.

In GLEANINGS for Aug. 1, page 568, you say you think it doubtful whether bees will steal eggs from another hive. Let me give my experience. I had a colony of blacks which I wanted to change to Italians. After killing the old queen I waited one week, then took out all frames and gave them frames with foundation, with the exception of one frame that had some comb which I had fixed up according to Alley's plan, with 10 or 12 eggs in it. The bees built out two very nice queen-cells; and a couple of days before they hatched I looked them over, and just alongside of one of the capped queen-cells was another queen-cell just started, with an egg in it. Now, where did that egg come from? I am positive there was no queen in the hive nor any fertile worker, as the

cells hatched, and in due time the young queen was laying. One egg was all I could find.

Another thing I should like some information on: This summer I have been requeening all colonies which had old queens. One day, after catching three or four old queens, out of curiosity I dropped one at the entrance of a strong colony which I knew had a laying queen. She walked right in, apparently undisturbed. Ten days later I examined this hive and found two old queens laying for all they were worth.

I am positive both were old queens, as both were clipped (I keep all my queens clipped). I do not think they had tried to supersede the old queen, as there was no sign of it, and she was laying well. Is not that somewhat out of the usual order of things? FRANK W. LIGHTON.

Williamsport, Pa., Aug. 12, 1890.

Friend L., I am not quite satisfied that the bees stole that egg. You do not make it quite clear, however. Did a good young queen hatch out from that egg that came into the hive so mysteriously?—Letting a queen loose at the entrance of the hive where they have a laying queen, without her being harmed, is nothing very strange, after all. If you have a dozen queens you don't care any thing about, and you put them at the entrance of other hives during the honey season, I think you will find a half or more of them will be received and go to laying, and you will find the two queens in a hive, probably, until the honey-flow ceases.

INTRODUCING.

DR. MILLER'S METHOD WHEREBY IT CAN BE ACCOMPLISHED WITHOUT EVEN OPENING THE HIVE.

The plan of introducing queens by means of the Peet cage, letting the bees eat through the candy, thus liberating the queen, presents some advantages over any other method I have tried. It is especially advantageous in an out-apiary. Kill your old queen, put the new one caged in the hive, and if you don't look at her again for a week it doesn't matter. But the Peet cage doesn't work equally well in all hives, for the simple reason that there is not room for it. My hives have flat board covers, so there is not room between the top-bars and cover, and the only way to do is to put the cage between the combs, which spaces them so far apart as to make trouble.

MILLER'S INTRODUCING-CAGE.

I send you herewith a simple introducing-cage that I have been using this season with a great deal of satisfaction. It is not a shipping-cage, of use only for introducing, but it takes up so little room that, if left between the top-bars or combs for a year, no great harm would be done. Generally, however, I push it into the entrance of the hive, under the bottom-bars, and prefer this unless it is so cold that there is danger of chilling the queen. It is so simple that any one can make it.

Take a block 3 inches long, 1¼ wide, and ⅜ thick; two blocks 1 inch by $\frac{5}{16}$ x ⅜; two pieces of tin about an inch square; a piece of wire cloth 4½ x 3½; two pieces of fine wire about 9 inches long, and four small wire nails ½ or ⅝ long. That's the bill of material. Lay down the two small blocks parallel, ⅜ of an inch apart, one piece of tin under, and one over them. Nail together and clinch. These two blocks, being ⅜ inch apart, make the hole to fill with Good candy, through which the queen is liberated. A good way to make sure of having this hole all right is to lay between the two blocks, when nailing, a third block ⅜ square. Put this nailed piece at the end of the large block, and wrap the wire cloth around it, letting it come flush with the end of the small piece, and it will come within about half an inch of the end of the large piece. Wind one piece of wire within about a quarter of an inch of one end of the wire cloth, and fasten by twisting, and wind the other wire at the other end. Play the large block back and forth a few times, so it will work easily in the wire cloth, and trim off the least bit of the corners at the end of the block so it will enter easily. To provision it, let the large block be pushed clear in; fill the hole with candy, and tamp it down. When to be used, after putting in the queen, push the block in far enough to allow the queen a room about 1½ inches long. After the bees have had it for some time it will be so glued that the plug must be scraped off before using again. There is nothing brilliant about this cage, and nothing really original, but it has the merit of such Simplicity as to be easily made by any one, and of being of such size and shape as to be used where others can not well be used.

BAIT SECTIONS FINISHED FIRST.

This year I had some 250 of last year's unfinished sections used as bait, one in a super; and after the general report that such sections were filled first and finished last, I was quite interested to notice how mine would come out. Invariably these bait sections were commenced first, just as reported. And almost as invariably these sections were the first ones in the supers to be finished. I think there were two or three of the 250 that were not first completed. Moreover, they are nice sections, but not quite so nice as the others. Now, why is it that the general agreement has been that such sections were last in being finished, and would better be thrown away? The only reason I can guess at is, that some honey, if only a little that was granulated and dried, was left in the sections. When I first used bait sections I thought there must be some honey left in them, and such sections, when finished, had a watery appearance, especially after being taken off the hives for some time, when the honey was inclined to ooze through the cappings. I suspect the old honey, perhaps a little soured, acted somewhat as yeast. At any rate, I should not like to get along without bait sections; but they must have no honey in them, and must be cleaned out thoroughly *by the bees*. C. C. MILLER.

Marengo, Ill., Aug. 16.

Your cage is not really original, as you say; but a few old things, doctor, when revived in a little different form, oftentimes prove to be more valuable than the new. I know your cage will work all right, and, so far as introducing alone is concerned, it is perhaps better than any thing else—yes, even better than the Peet, when the apiarist desires to introduce his own stock into other hives on account of the great saving in time. Introducing by sliding the cage into the entrance during warm weather would work all right. I should

think. You will observe in the article below what I say in favor of the Benton cage.—We are glad to get the facts in regard to unfinished sections. So far as I remember, it seems to be generally agreed that unfinished sections that have no honey in them are valuable. E. R.

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

SHIPPING QUEENS.

I have been aware of the fact for a year or two, that the Peet cage, though eminently successful for introducing, was far from being satisfactory for mailing queens. In view of this, for over a year back, in our queen department we have been testing different cages; and finally, during the latter part of last season, and the whole of this, we have been sending over half of our queens in the Benton. This is the cage that our friend Frank, now of Munich, Germany, first introduced for mailing queens across the ocean, and those who have received queens by mail from Mr. Benton can testify to the remarkably good condition in which the queens were received, although they have come from Germany, across the ocean, and then across our own continent in some cases. I have felt that perhaps there might be a good many queen-rearers who were neglecting to avail themselves of a good thing, and hence I am glad, after a most thorough test, to mention it.

As Mr. Benton did not originally design it for introducing, however successful it might be for mailing queens across the continent, it would hardly be suited to our purpose unless it could be so adapted. It took very great ingenuity to modify it, as the engraving below will show.

BENTON'S MAILING-CAGE, AS USED AT THE HOME OF THE HONEY-BEES.

The figure on the left shows the block as bored out ready for the reception of the bees and candy. Its outside dimensions are 4⅝x1⅝x¾. Three holes 1⅜ in diameter, by ⅝ deep, are bored just close enough to leave an opening from one to the other. The further one is filled with candy. The other two are for the bees. The end hole provides an abundance of ventilation, while the center one has no opening except a communication through the end hole. A piece of stout manilla paper covers the center and candied hole, and then wire cloth covers all three. The feature of this cage is, that for warm weather the bees can seek the end hole, with ample ventilation through the saw-cut in one corner, and by the wire cloth which has a direct communication from the outside. For cold weather, or when the bees, perchance, go over the mountains, they will naturally huddle into the center hole, where it is warmer. To introduce, simply follow directions which we print on the nice clean basswood cover, as seen below:

The hole through the wire cloth, through which the hive bees eat to the candy, will be seen in the cage near the center. To put the queen into the cage, the wire cloth is slid back, and the bees are picked up individually, one by one, by the wings, until twenty or thirty have been put in, the number depending upon the weather, after which the wire cloth is tacked down. The cover, with printed directions as below, is tacked over the cage covering the wire cloth, with four half-inch wire nails. To mail, with a coarse pen we print the directions in a neat back-hand lettering, which most of the clerks in the office know how to do. A two-cent stamp is then put on at the right, and the cage is ready for California or any other remote point in the United States, without wrapping or string.

The almost universal testimony of our customers is, that the queens arrive in these cages in splendid condition. Whenever a Peet cage fails to deliver the queens, they are always replaced in the Benton. With the exception of two or three instances (when we put in only three attendants) during our large queen-trade this summer and part of last, it has been successful. Its great superiority in mailing, over the Peet, has been so very marked that we have about decided to use it entirely next season. As to the comparative merits of the two, the card below speaks for itself. It seems we had sent our customer some queens in the Peet cages. They, failing to go through, were replaced in a Benton cage, and this is the way our customer wrote:

> The queens came this morning, no dead bees in either cage. They were just as lively as when you took them from the hives. I don't want any more queens in the Peet cage. E. D. HOWELL.
> New Hampton, N. Y., Sept. 6.

Not long ago we sent twelve queens in Benton cages to Reno, Nevada. Our customer, Mr. W. K. Ball, writes of their condition as follows:

> The twelve queens all arrived O. K. They are very nice. W. K. BALL.
> Reno, Nev., Sept. 15.

Mr. J. D. Fooshe, who has had remarkable

Directions for Introducing with the Benton Cage.

Before introducing, be sure that the colony is queenless. A colony long queenless is not so good as one lately so. To introduce, pry off the cover, and note the condition of the queen. Lay the cage under the enamel cloth or quilt, on top of the frames, directly over the cluster, wire cloth down. If the weather is cold, insert the cage between the frames in the cluster. In 24 or 48 hours, by means of the opening to the candy through the wire cloth at one end, the bees will eat through the candy, when they will be ready to accept the queen. Unless the queen appears feeble, do not examine again for 48 hours. If she is not yet released, and is in good condition, close the hive up again. The bees will shortly release her. The point is, the bees should release the queen themselves. While this method gives general success, we can not guarantee safe introduction. We only guarantee delivery of a queen alive and in good order. If the queen is dead upon opening this package, notify us at once and we will replace free of charge.

A. I. ROOT, Medina, Ohio.

success in mailing queens, not only in the Peet but in the Benton cage, says:

Nearly all I sent out single were in Benton cages, and generally long distances. I think my success this year has been remarkable. . . . . I think the Benton a better shipping and introducing cage than the Peet, and will give better satisfaction.

Coronaca, S. C., Sept., 1890. J. D. FOOSHE.

Mr. Fooshe is a queen-breeder of no little experience. He has furnished us this season over 300 queens. We have received scores of testimonials, but we give the above only as samples. It is not practicable with us to send queens in single Peet cages to California.

As to introducing, the candy plan, with our customers, seems to have given fairly good results. The Peet method of introducing is certainly better where the queens arrive in feeble condition, because they are then caged right on to a comb, and are given access to cells of unsealed honey; but the Benton seems to deliver the queens not only alive but vigorous, and the candy plan is just as good for introducing good strong queens. All the timid beginner needs to do is to pry open the cover and lay the cage down upon the frames, and introducing, so far as *he* is concerned, is done. With the Peet plan, the A B C scholar may be nervous for fear he may not be able to draw the slide just right, and successfully cage her majesty on the combs, without pinching her head or letting her get away.

There are good reasons why the Benton cage delivers its queens in better condition. First, it is, to a certain extent, climatic. If the temperature, in going over the mountains, we will say, suddenly goes down, or the night turns cool, the queen and her attendants can go into the warmer compartment of the cage. If, on the other hand, it goes up, they can enter the end hole. With the Peet cage there is one large hole, one side of it covered with tin. The metal itself is cold, and readily conducts away the heat of the few bees and queen. Aside from this, as the mail-bags are often thrown with considerable violence from the cars, the concussion of the cage causes the bees to be jarred from one side of the compartment to the other, in the Peet cage, especially if they happpen to be on the tin side of the cage; and a large compartment is much worse than a small one. Again, the tin slide is always invariable in width; and the wood itself, if it shrinks or swells, will cause the slide to work either too loosely or too hard. It would seem that, theoretically and practically, there are good reasons why the Benton cage is superior as a general mailing-cage. Our friend Mr. Benton deserves much credit for introducing it. I notice that one or two queen-breeders who are sending out queens in identically the same cage are calling it after their own names. Possibly they do it through ignorance. But Mr. Benton, I think, was the first to construct this kind of cage, and demonstrate its great utility for mailing queens, not only across continents, but across oceans, and it should be named after him.

CONVENTION NOTICES.

The Southwestern Wisconsin Bee-keepers' Affiliated Association will meet Oct. 8, 1890, in Platteville, Wis., at the residence of E. France, to commence punctually at 10 A.M., sharp. There will be a large turnout of prominent bee-keepers of the State. A question-box, free to all, in which any subject you wish discussed can be presented and answered. Let every one be on hand and bring in his report for 1890 starting at spring count, or May 1. BENJ. E. RICE, Sec'y, Boscobel, Wis.

The International American Bee Association will meet in Keokuk, Ia., Oct. 29, 30, 31. Parties desiring to attend will obtain a programme, and hotel rates, by addressing the secretary. Further particulars will be given in the Oct. 15th issue. A large attendance is expected, as this is the first meeting of this association west of the Missi-sippi, and a number of the leading bee-keepers and bee-publishers have promised to be present. For further particulars, address

C. P. DADANT, Hamilton, Ill.

The next convention of the Turkey Hill Bee-keepers' Association will take place at the Turkey Hill Grange Hall, near Wilderman's Station, three miles southeast of Belleville, Ill., Oct. 30, 1890. All interested are invited. S BRAEUTIGAM, Pres.

ADVERTISEMENTS THAT DO NOT PAY.

SOME OF THE REASONS WHY THEY DO NOT PAY.

A. I. Root:—I will settle that advertisement, which, by the way, never brought me one inquiry. J. B. LAMONTAGUE.

Winter Park, Fla., Sept. 15.

On looking up this advertisement that did not pay, we find it read as follows:

VIRGIN QUEENS. Pure virgin queens at 50c each, or 40c each per 100. J. B. LAMONTAGUE, Winter Park, Fla.

Now, when advertisements of virgin queens began to come in, I told Ernest that I had so little faith that they would be of value to anybody, I would advise not accepting them. If I am correct, he suggested, however, to let people try them and see what the reports would be. Well, the above report is just what I expected, and, in fact, what I am glad to see. The subscribers to GLEANINGS, to a man, have sufficient good sense to refuse to invest. I do not wish to be severe on those who have recommended sending virgin queens by mail. One who is very anxious to succeed could introduce a virgin queen, and get her to laying; but I think he would get along much faster, and with much better success, if he had queen-cells instead of queens; and I am not certain but that I should prefer to take larvæ of the right age rather than a virgin queen that was old enough to have made a trip by mail. Friend L., we take pleasure in crediting you with $1.20, which you wasted in advertising virgin queens.

ANOTHER ADVERTISEMENT THAT DIDN'T PAY.

I advertised my bees Aug. 15 and Sept. 1, 1889, and made no sales. Now, I paid this willingly, and did not consider you responsible in any way because I did not sell my bees. However, inasmuch as it is your own proposition to refund the money thus paid, and considering the fact that you have done so by others, you may place to my credit the amount paid you at that time. B. T. BLEASDALE.

Warrensville, O., Sept. 12, 1890.

Friend B., you give us only another evidence that almost no one wants to purchase bees after the honey crop is over, especially in our locality. We are losing some money in this business of paying back; but, never mind; we are gaining in an experience that is valuable to ourselves as well as to our readers. But, just hold on a little. Here comes some testimony from the other side.

ADVERTISEMENTS THAT DID PAY.

Mr. Root:—Please stop my advertisement at once. My queens are all sold. Your journal is a first-class advertising medium. I will patronize you again soon. F. H. PETTS.

Warsaw, Mo., Sept. 9, 1890.

I have sold 219 queens from my advertisement. Many thanks. J. W. TAYLOR.

Ozan, Ark., Sept. 13, 1890.

My sales are amounting to a little over $100 per month, as a result of my ad. in GLEANINGS.

Morgan, Ky., Aug. 25. J. P. MOORE.

Our Question-Box,

With Replies from our best Authorities on Bees.

Question 169. *1. Is there any advantage in having honey stored during clover bloom for stores? 2. Which do you prefer for winter—early honey, late honey, or sugar syrup?*

1. Yes. 2. Early honey.
Illinois. N. W. Dadant & Son.

1. I think not, in my locality. 2. Sugar syrup first; and second, I have no choice.
Michigan. S. W. James Heddon.

1. No, not according to my experience. 2. All are good. I think my bees winter best on honey gathered from the linden-tree.
New York. C. G. M. Doolittle.

No. If all are good, the one that is cheapest. We have often wintered our bees entirely on fall honey, and they *wintered well*.
Michigan. C. A. J. Cook.

1. There surely is, if clover is the only source from which honey is gathered. 2. Sugar syrup; but my bees wintered splendidly last winter on fall honey.
Ohio. N. W. A. B. Mason.

1. I think there may be. 2. I believe I should prefer the early honey, because it is more sure to be well evaporated, and the bees have all the time needed to fix it up just as they want it.
Illinois. N. C. C. Miller.

1. There is no advantage in keeping the best clover honey for winter stores. 2. Fall honey is the scape-goat, but not the cause of winter losses. Fall honeys are first-class winter stores, and better than sugar syrup.
Ohio. S. W. C. F. Muth.

In our location we have no fall honey that we can depend on for winter stores, so we always let the bees store basswood honey for winter stores. I have never used sugar syrup for winter feed.
Wisconsin. S. W. E. France.

1. Yes. The advantage of having a better quality and better ripened honey. 2. I am a little prejudiced in favor of the sugar. I consider it as good as well-ripened early honey, and perhaps no better.
Ohio. N. W. H. R. Boardman.

1. Very likely there is; but the plan will not do for localities where the yield per hive is small. 2. I have had no experience with syrup, but presume it to be better than most late honey, and not so good as the best early stores.
Ohio. N. W. E. E. Hasty.

1. Not here. In fact, I think I should prefer our fall honey to clover, as a rule. In some localities, clover honey would probably be better. 2. Good honey, when the bees gather it, whether early or late. If feeding is necessary, use sugar syrup.
Illinois. N. C. J. A. Green.

1. I would give the preference to honey gathered in the height of the season; but there is hardly enough advantage, ordinarily, to justify the necessary trouble in securing it. 2. My experience from feeding syrup from good sugar (31 bbls. in one season) would make me favor sugar to any honey, or as good as the best of honey.
California. S. R. Wilkin.

1. Yes, at present prices of honey in a locality where there is no fall or late harvest of dark honey. 2. I think sugar syrup, one year with another, is preferable. Yes, early honey is good; late honey is all right in an open winter where bees are wintered on summer stands.
Vermont. N. W. A. E. Manum.

None, except you would be sure of well-ripened honey. Honey gathered later in the season, if thick and capped over, is probably just as good. My order of preference is as follows: 1. Good thick honey, sealed over; 2. Sugar syrup; 3. Late honey, some unsealed; 4th and meanest, "bug-juice."
Illinois. N. W. C. Mrs. L. Harrison.

1. Yes. 2. I prefer *good* honey, whether early or late. For the two last falls I have fed some colonies varying quantities of granulated-sugar syrup. The amounts varied from 2 lbs. up to 20, and the quantity fed was carefully marked upon each hive. Soon after taking them out in the spring I have carefully examined them, only to find them to average no better than those unfed.
New York. C. P. H. Elwood.

1. Yes, if you can get good clover honey and save it for winter stores. You have the advantage of being sure of it. You might get as good later, but are not certain of it. 2. We generally save basswood honey enough to winter our bees till we see whether we get fall honey. Any honey gathered from flowers when the weather is warm and dry will winter bees. Honey-dew, or secretion from plant-lice, is what we most dread here.
Wisconsin. S. W. S. I. Freeborn.

1. This depends upon your locality. Here it is an advantage to have winter stores gathered early. 2. I prefer the early honey. Our late honey-yield is very uncertain. We have but little buckwheat, and bees are liable to store honey-dew. In such cases it is a real comfort to have several frames of early honey to substitute for the honey-dew. Those living in a buckwheat-growing country, and who are reasonably sure of a yield from that source, can depend upon it for wintering. It is a good winter food. Sugar feeding in this State and in Vermont is a practice of the past.
New York. E. Rambler.

The general impression seems to be that clover honey, as a rule, is but little if any better than other honey well ripened and sealed up in the combs, although one or two suggest that the man who makes *sure* of surplus combs to provide destitute colonies will be less likely to let his bees starve for want of attention. These extra combs, carefully set away, make the matter of feeding a comparatively easy one. It does seem, however, too bad to use our best honey, when dark honey will answer almost if not quite as well. If, however, one depends on fall honey, and does not get any, he is quite apt to neglect them, and to suffer loss. Rambler suggests that sugar feeding in York State is a practice of the past. I suspect this is largely due to the fact that honey—especially fall honey—has for some time been rather low, and good sugar rather high. To prepare and feed sugar syrup is more trouble, and there is always more or less loss in getting it into the combs and sealed up. Those who have undertaken to

throw out honey that was already in the right shape for winter stores, and supply its place with sugar syrup, have found out to their sorrow what it cost to make the exchange.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

IS THE GARDEN PARSNIP OF MISSOURI THE SIMPSON HONEY-PLANT OF THE A B C?

On p. 120, A B C, there is an illustration of the Simpson honey-plant that is as much like our common garden parsnip as two black-eyed peas. Any way, how is parsnip for a honey-plant? Ten or fifteen years ago we let some go to seed, and it came up next year in the fence-corners, and in a little out-of-the way place, and has kept every thing crowded out, and has not degenerated to this day. In blooming time it is literally covered with bees, sweat-bees, dirt-daubers, lightning-bugs, etc. You can see the honey on the little pods, with one eye shut. I think if that man on page 254 of the A B C were to see it some morning, he would turn a double summersault backward. This spring it crowded the path my wife used in going to the garden; and in order to get rid of it and the bees she took a mowing-blade and cut off the tops. She is not afraid of a mowing-blade or a hoe-handle. When it had been in bloom quite a time, and where it was cut off, it threw out another set of branches and blooms, and gave the bees a second crop to work on.

J. D. WHITTENBURG.

Marshfield, Mo., Aug. 25.

Friend W., this is a little singular. We raise parsnip seed ourselves, and have for some years, but I do not remember of having ever seen a honey-bee on the bloom. I think you are mistaken about the Simpson honey-plant being like the parsnip. If you have the two side by side you will see; but if parsnips should produce honey, somebody should locate near where parsnips are grown for seed on a large scale.

A BIG TESTIMONIAL FOR THE DOVETAILED HIVE AND THE SECTION-HOLDER SURPLUS ARRANGEMENT.

I will try to get the honey ready to ship by the middle of September. The bees are gathering honey very fast now, and the prospect is good for a month yet. The second crop of alfalfa is in full bloom now. I haven't help enough to keep up with my work. It is hard to get any one here to work with bees. Everybody seems to be afraid of them. I have one man to help me. We took off over 1200 lbs. of very nice honey today, mostly out of the Dovetailed hive. This hive, with section-holders, is the best one that I ever saw. If I had had all my bees in those hives I should have secured a third more honey this year. I see but one fault with them; that is, the bottom-bar. If the section-holder is too light it sags down when it is full of honey, and leaves too much space on top of the section, and the bees store in honey. I shall want 500 of the Dovetailed hive this fall. W. K. BALL.

Reno, Nev., Aug. 31.

Thanks for your kind words for the Dovetailed hive. We note your criticism, and expect to make the bottoms of the section-holders a full quarter-inch hereafter.

CAN WE KEEP BEES AWAY FROM NEIGHBORING WATER-TROUGHS?

Is there any way I can keep my bees away from my neighbor's well? They keep water in a trough for their stock. I have tried all I know, but still they go there. I have 45 good strong colonies. They are about 200 feet from the well. JOHN BURR.

Braceville, Ill.

I presume, friend B., a good many of our readers will ask what harm the bees did, any way, at the neighbor's well. But I presume the trouble is, they are afraid of them, and imagine the bees came there to sting. It may be, too, that the children get them on their clothing, or possibly pinch them by accident; and as the neighbor feels annoyed, something should be done. Well, the only thing you can do is to provide as good a watering-place for the bees near home; and I would do this, even if it necessitated digging a well of my own. Then cut away all the trees or any thing else that keeps the sun away, and provide a lot of pebbly gravel for the bees to alight on while they are drinking. If you wish to make it handsome, put in some stones and shells. Fix in, also, some varieties of moss, and I think you can run a successful opposition to your neighbor's well. The reason I recommend a well is because nothing else, unless you have a running spring, will afford such a constant supply of just about the kind of wetness that bees prefer.

BEESWAX FOR MAKING SCREWS AND NAILS PENETRATE WOOD.

Did you ever try putting a little beeswax on a screw or nail that you wished to drive into hard wood? If not, it will be a revelation to you. S. T. WALKER.

Forest Grove, Or., Aug. 11.

Friend W., what you mention is known to some extent, and has been, I think, before given in our back volumes. It is a very valuable fact. Some time ago we purchased a new and expensive machine for punching holes in our A B C books for wiring the paper-covered ones. The machine could not be made to work. There was not power enough in the thing to push the awls through such a great quantity of stiff hard paper. One of the girls, however, suggested that we first push the awls through a very thick sheet of beeswax. I do not know where she got the idea, but, presto! after they had been waxed they went right through the whole book without any trouble at all.

ALLEN'S HIVE-STAND.

I like your plan of an apiary, with a grape-vine trellis at the south of each hive, very much; but I think I have an improvement on the foundation of the hives. I use a platform 2½x4 ft. in size, made of ⅞ lumber, nailed the short way, on two 2-inch-square cleats. This platform is set in the ground so that the top is level with the lawn. The hive is placed in the center from side to side, and six inches from the back, leaving, with the hive I use, about 12 inches in front. The advantage it has is, that it will not blow away in a strong breeze, as the

sawdust or sand you use is sure to do in our heavy winds. The grass and weeds will be effectually stopped, which is not the case with sand or sawdust, and, so far as I can see, it possesses all the desirable features of either. Cost in some localities might be a possible objection; but the sand would be as expensive as the lumber here, and I doubt not in some places it would be even more so.

We have had a very poor season in this part of the State, owing to hot winds and little or no rain. During the last week, however, we have had some good rains, and bees are doing a thriving business to-day. We can hardly hope for much surplus, though. H. C. Allen.

Rising City, Neb., Aug. 22.

Friend A., the very first hive-stands I ever used were made very much as you describe. I procured nice clean dry-goods boxes, or cases, from the stores, and sawed them in two in the middle, so that each made two. The objection to having them so large is not only the expense, but, more than all, that you jar the hives whenever you step on this hive-stand. And where they are so large, you are sure to put your feet on them, more or less, in managing your bees and going around your hives. Another thing, these large bases get out of shape in the course of time, especially when the hives get very heavy with honey. I finally decided that I wanted the alighting-board just as large as the bottom of the hive, and no larger; and then I began to use the cover of the Simplicity hive for a bottom-board, enlarging and contracting the entrance by pushing it forward on this same cover.

HONEY CANDYING BEFORE CAPPING, ETC.

The spring crop was a total failure. June and July were good. We never did get much honey here through the summer months before this year. From the middle of June to the first week in August our bees never did better—especially the Italians and hybrids. Those that were not bothered for increase stored from 35 to 50 lbs. of surplus. I think they gathered a good part of it from cotton-bloom. Lots of the honey would make sugar before it was capped over. I never saw the like before. I should like to ask, 1, What made it sugar, and where did it come from?

2. Will a hive that has ten frames in it, and half of them solidly filled with honey, and the other half of them ⅔ honey and ⅓ brood, winter well in this climate or not? I never had them so nearly fill their brood-chamber before.

3. Does the fertilization of a queen affect her drone progeny or not? I have a book treating on bee culture that claims that it does. I have been watching this very closely for some time. I breed all my queens from an Italian queen that I think is pure. I notice that the drones from the queens that produce hybrid workers are not as uniformly marked as those of ones that were purely mated.

Decatur, Miss., Aug. 28. J. R. Cleveland.

1. Certain kinds of nectar will candy very soon after it is gathered, and we believe this has been before reported of the cotton honey. Will some of our Southern contributors please enlighten us? 2. Yes, we should say a colony under the conditions named ought to be in good condition to winter. 3. The fertilization of a queen does not affect her male progeny—at least, the evidence so far is to this effect. Drones from the same queen will sometimes vary greatly in color. The drones from our imported Italian queens are sometimes almost black, while others from the same queen have one or two yellow bands. But we have always found that the drones from imported mothers, whether light or dark, produce three-banded workers if the queens are pure.

THE SEX OF THE EGG DETERMINED BY THE QUEEN'S GUARD.

In reading Dr. Miller's article in Gleanings, Aug. 1, a point overlooked by him and all others I have read, came to my mind. The queen's guard is always with her; and when she lays an egg in worker-cells one of the workers goes into the cell and fixes it, taking more time in "fixing" than the queen does in laying the egg. Now, what I want to know is, Does that part of the ceremony have any thing to do with determining the sex? I have noticed this for a period of six years or more, and am now of the opinion that it must have something to do with the sex of the bee. Have you ever noticed this act, on the part of the workers? If you watch the queen when laying you can not fail to see it. The long drouth has been hard on bees in this part of the country. Every thing is dried up, and there is no honey to gather.

Ezbon, Kan., Aug. 16. David Ross.

Friend R., I have noticed exactly what you describe; and I have often wondered, also, why this bee that crawls into the cell after the egg is laid should stay such a length of time. With our observatory hive we used to get impatient because these bees prevented us from getting a glimpse of a new-laid egg. You may be right about it; but how in the world are we going to prove it, or determine what the bee does while it has been so long in that dark cell? A cell made of very thin glass might enable us to see what the bee seems to be doing with the egg.

DEATH OF JUDGE ANDREWS.

Our dear friend and brother, Judge W. H. Andrews, of McKinney, Texas, died August 6, 1890, of paralysis. One among the best lights in bee culture that we had in the South has gone out.

W. R. Graham.

Greenville, Tex., Sept. 19, 1890.

You are right, friend G. Judge Andrews has been one of the lights in bee culture, especially in the South. We remember his quiet, kindly ways at the various conventions he has taken the pains to attend; and, by the way, is it not sad that we have not had the pleasure of meeting as many of the great bee-men of the South as we did a few years ago? As the older ones pass away, and the boys take up the responsibilities, let us be careful that these pleasant old-time relations and hand-shakings between friends not only north and south, but east and west, be not passed over nor forgotten.

SUPERSEDURE AFTER THE YOUNG QUEEN STARTS TO LAYING.

You ask if it is the rule that the old queen is allowed in the hive until the young one gets to laying. I think it is, for I have had half a dozen or more old queens superseded this spring, and in every case I found the young one laying

for a week or more before the old one was *deposed*. This I know to be fact, for I have seen both at the same time, sometimes both on the same comb at work laying, not seeming to care for one another. ARTHUR F. BROWN.

Huntington, Fla., Aug. 8.

DO WINGS OF CLIPPED QUEENS EVER GROW OUT AGAIN?

An old acquaintance who has kept bees for years is under the impression that queens' wings that have been clipped will grow out again, and become perfect; and I have been puzzled more than once to find queens with perfect wings where I was sure I had clipped them. On searching the combs I failed to find the cells where young queens were hatched. I am satisfied, from considerable experience, that, when the queen's wings are clipped quite close to the body, they don't grow out again; but when the tips only are cut off, I'm not sure about it. Can you clear the matter up? ARCH. DUNCAN.

Wyoming, Ont., Sept. 11.

Friend D., we think you are mistaken; nevertheless, it may be well to watch carefully and see whether queens with the ends of their wings clipped, or, say, with the thin gauze-like part cut off, ever do have it grow again. I have clipped queens' wings in almost all sorts of ways, and I never noticed any change afterward.

SUCCESSFUL WITH DOOLITTLE'S PLAN OF REARING QUEENS.

I have been very successful in queen-rearing the past season with Doolittle's plan, with the exception of one batch of 30 cells, which doubtless got chilled. The bees have commenced to drive out the greatly abused drones. My bees are in the best possible condition—plenty of stores, and gathering sufficient honey for brood-rearing.

BEE-ESCAPES A SUCCESS.

The wire cone bee-escape has worked nicely excepting where the bees were quite young. Such bees are seldom in a hurry to leave their loafing-place.

THE THICK OR HEAVY TOP-BAR FRAMES

have the preference in my apiary—no brace-combs nor sagging to contend with.

Reinersville, O., Aug. 22. J. A. GOLDEN.

POLLEN ON THE BACKS OF BEES.

Inclosed find several bees with yellow spots on their backs between their wings. This appears to be a sort of scab, or hard substance. Several of my colonies show these spots more or less. The bees appear as lively as any in the colony. Is this a disease, or what is it? If a disease, what will cure it? I saw some correspondence a while ago in GLEANINGS inquiring whether bees lose their stings when they sting each other. I saw a case of this kind a few days ago. An Italian was trying to get into a nucleus of black bees. One of the blacks clinched him, and they went spinning around, top fashion, and soon they were trying to pull apart. The Italian had stung the black bee in the abdomen; and in getting apart, the Italian lost his sting, leaving it in the black bee. SUBSCRIBER.

West Troy, N. Y., Sept. 9.

Surmising that the yellow spots, or lumps, might be pollen, we forwarded the letter to Prof. Cook, who replies:

The spots on the backs of the bees in question are simply masses of pollen. I have often seen just such curious plasters. At this season our bees are often plastered up with the white pollen of the snap-dragon. The yellow pollen grains on these bees are spherical. I do not know what the kind of pollen is. It does no harm to the bees. They will be cleaned up after nightfall, and the pollen saved for bee-bread.

Agricultural College, Mich. A. J. COOK.

BLACK WEEVIL IN THE WHEAT, AND HOW TO DESTROY; STINGLESS BEES, ETC.

What is the best way to keep the black weevils out of wheat? We are pestered very much with them. Is there any preventive for it?

I will tell you how the $3.00 queen I bought of you the first of August, 1889, has done. I have had three swarms and two extra queens from 1 lb. of bees and queen in a little over one year. How does that do for a beginner? I haven't taken any honey this year, as there hasn't been any thing for bees to work on here since the first of April. It is all the bees could do to find enough to live on. I love to read GLEANINGS, and am always anxious to have it come. Tell us more about those stingless bees you spoke of.

H. N. JOHNSTON.

Mooresville, N. C., Aug. 30.

Thanks for your kind words. The stingless bees have all "petered out." The cold nights, or something else due to this climate, does not seem to agree with them. In regard to the weevils, we forwarded the item to Prof. Cook, who replies:

The only way I know of to keep weevil out of wheat is to put the wheat in tight, *very* tight, boxes. This is quite impracticable, and so we must be able to kill them when they are once in. By the use of bi-sulphide of carbon, as described in my late Bulletin, this can be cheaply and effectively, and, with due caution, safely done. This can be got at wholesale of Edward Taylor, Cleveland, O. As this will not injure any thing about the mill, and will kill all insects, it is the specific. A. J. COOK.

Agricultural College, Mich.

PROFANITY AMONG RAILROAD MEN.

You seem to think railroad men are more given to profane language than any other class of people. I do not think so. Very few of the railroad men with whom I come in contact (and I have been one for fifteen years) use profane language. I never swore an oath in my life, and have a brother in the railroad business who does not swear. Neither is a professing Christian, or, at least, we belong to no church. I think I would report any railroad man should I hear him use as profane language as I have heard doctors, lawyers, and drummers use. It is something very disagreeable to me, therefore I notice it probably more than most people would. Why do you address that request to railroad men? W. H. BUTLER.

Clifford, Ind., Sept. 13.

Friend B., I am very glad indeed to get your report. I addressed my request to railroad men, because in our State, and, in fact, almost everywhere else where I have traveled, there was more swearing among the railroaders than among any other class; perhaps I should say, rather, among the men who handle freight, the men who construct our railways, and the cheaper help employed all along the line. Perhaps it is more true that men are more given to swearing who do heavy work that does not require very much skill, and consequently does not afford very much pay. And while I am writing,

the idea occurs to me that their profanity may be one reason why their pay is small. It certainly dulls the intellect and blunts the moral perceptions to be constantly in the habit of taking God's name in vain.

WHO IS MOST TO BLAME?

Friend Root:—I love to read your home talks. You will never find out in *this* world the amount of good you do. I once spoke to a bright young man about drinking so hard. I said, "You ought to quit for your mother's sake, if for nothing else. She is a leader in temperance work, and president of the W. C. T. U." He replied, "Yes, I know it. But," said he, "if she would stay at home and mend my clothes, and see to my meals and other matters, I think she would be doing a better work." Is she working, do you think, for stars in her crown in this world or that which is to come?
Evansville, Ind., July 21. A Home Man.

My good friend, I thank you sincerely for the very high compliment which you pay me; but I fear you are getting on dangerous ground when you criticise so severely one of the W. C. T. U. workers. I have heard young men reply just about the way that one did, and I know mothers sometimes make mistakes in the way you have indicated; but I do think the young man has given us a glimpse of a very, very bad heart. When a youth can publicly and unblushingly shift the blame from his own shoulders off on to his mother, he has got pretty far down on his way to hopeless ruin. I know that many of our prominent temperance women—at least those who have worked hard for great temperance reforms—have been in a like way criticised; but I think that we who perhaps stand off at one side should be very careful about finding fault. It is an exceedingly easy matter to find flaws in the character of every good man and woman. Let me give you a little glimpse of the other side of the question. It is bad for a *father* to be away from his family. Now, in view of this, suppose all *good* men should stay at home, and give, as a reason, that their first duty was to attend to the bringing-up of their children. Where would our nation soon be if this were fully carried out? There are many mothers in my employ; and when they come here to their daily work, their children can not well be brought with them. Some of them, of necessity, are out in the streets, and very likely are much in need at times of a mother's watchful care; but there seems to be no other way in the world for the mother to earn her daily bread.

CAN A PROFESSOR OF RELIGION CONSISTENTLY USE TOBACCO?

At the time of my conversion, at 21 years of age, I both chewed and smoked, and had for about 7 years. At that time, 1871, I had not heard any thing said on the subject; yet after receiving the witness of the Spirit, in about a week, or at most two, I began to be depressed in spirit on account of my tobacco; and I looked around to see what others were doing. I found the class-leaders and other prominent members using it, so I continued to also, but lost the real sense of God's presence in my soul. I went on in that way, fighting against my convictions, and professing religion for six months, when I attended a camp-meeting, and awoke to the fact that I was backslidden in heart. I gave it up. God returned to my heart, and took the appetite all away, and it has never returned.
Vinland, Kan., Sept. 12. D. H. Welch.

Friend W., I am exceedingly glad to get this testimony of yours. I have had no experience with tobacco; but I do know that there is very little chance for God's spirit to obtain a lodging-place in the heart while we are conscious of holding fast to something that duty and plain common sense admonish us to give up. No wonder God took away the longing for tobacco. You gave it up for his sake, and you have your reward.

Notes and Queries.

The honey crop was good this year. Average, 55 lbs. per hive. Ira L. Donald.
Smyrna, Fla., Sept. 8.

Bees are doing well now, getting plenty of stores for winter at last, but that is nearly all of it; but I am glad for that.
Peter Blunier.
Roanoke, Ill., Sept. 18, 1890.

PROSPECTS GOOD FOR FALL HONEY.

Our bees did well in spring; but dry weather came and stopped work in the sections. The prospect for fall honey is pretty good—plenty of goldenrod, and some Spanish needle, and bees are working well. D. H. Welch.
Vinland, Kan., Sept. 12.

A UNIQUE WAY TO GET CAKES OF WAX OUT OF PANS.

Tell Dr. Miller that, when he wishes to clean the dripping-pan of his solar wax-extractor, to turn the pan bottom up and pour a little boiling water over it, then with a table-knife loosen the edges of the mass and it drops out all in a cake. G. B. Replogle.
Centerville, Iowa, Sept. 4.

[Many thanks, friend R. The idea is ingenious, and will work, without doubt.]

GETTING BEES TO TAKE THE HONEY FROM COMBS PLACED IN AN UPPER STORY.

How can I get bees to take honey from combs placed in an upper story, or anywhere else, so the colony that I want to have honey gets it? I have no extractor. W. R. Tate.
Goodman, Miss., Sept. 8.

[There is no quick way. If combs are placed in an upper story in the fall, with an enameled cloth between, but turned up a little at one end, the bees will, if short, carry the stores below in time, say in a month. But it is not very satisfactory at best.]

HONEY FROM JAPANESE AND NONE FROM THE COMMON BUCKWHEAT.

I sowed a late piece of Japanese buckwheat, which is furnishing a nice flow of honey now. The common buckwheat has ripened, and the bees did not work on it at all. They are working early and late now. J. W. Chapin.
Winfred, S. Dakota, Sept. 1.

[We are exceedingly glad of the above report, because on page 677 of our last issue there was

one just the other way. The truth of the matter is, I presume, that the varieties differ enough so that one may yield honey when the other does not.]

BURDOCK.

You fail to mention burdock as a honey-producer in the A B C. I find it very productive, bees working on it all day. CHAS. MATHER.

Cascade, N. Y., Aug. 4, 1890.

[Burdock has been frequently mentioned as a honey-plant. In fact, I have seen almost as many bees working on burdock at one time as I ever saw on some of the much-lauded honey-plants; but it is a fearful weed, and draws heavily on the soil. Who would think of raising burdocks, even if they did give honey by the tons?]

STOLEN BEES.

Last Friday night one of our colonies was stolen. Do you think they will come back again, if they are let out? They have them penned up yet, so I guess they have had no chance yet. They are a few hundred yards off from my house. JOHN HERBSLEB.

Galena, Ill., Aug 21, 1890.

[To be sure, the bees will come back again, if they have opportunity; but, now, are you not making a mistake? Is it not only a surmise that they are within only a few hundred yards of your house? I should hardly think they could be kept confined nearly a week, as you state it.]

MYSELF AND MY NEIGHBORS.

A righteous man regardeth the life of his beast; but the tender mercies of the wicked are cruel.—PROV. 12: 10.

In my talk about the new railroad, I touched upon the matter of cruelty to the horses but incidentally. I told you that the men who let their passions run away with them, and yield to the impulse to give vent to these passions in oaths and curses, using every sacred word they could bring to mind, are the ones that are abusive and inhuman to their horses. The latter part of our text tells us that even the *tender mercies* of the wicked are cruel. As they are crowding this railroad to its utmost, they have offered large pay for men and teams; and a good many who own only very indifferent teams have been induced to put them to drawing dirt by the stimulus of the $3.50 a day which they offer. A good many boys are also set to work to drive. Boys do not cost as much as men, so you see there is quite a chance for speculation. I had heard, before they came on to our grounds, of cruelty toward the horses, and I was determined to do what I could do to restrain it, and, as much as possible, in the same line I undertook to restrain the profanity—by the spirit of Christian kindness. Many of the teams, being unused to such work, were exceedingly awkward; and the experienced man—that is, experienced in railroad business—made no allowance for the poor dumb brutes on this account, but cursed and pounded the poor beasts when they were doing the very best they knew how. By the way, did you ever, in your sober moments, think what a cruel and ungentlemanly thing it is to abuse anybody—man, child, or dumb brute, because of inexperience? It was in my mind to include women; but the thought of being cruel to a woman, when she is doing her very level best, came so near to stirring up my feelings that I thought I would not put her in the list. Surely none but an intemperate man would think of being harsh and cruel to a woman because she did not understand what is wanted. But we are going to talk about horses to-day, and not about women. Most of the teams on the work were too poor in flesh to do their work well and easily. I am very well aware that work-horses may have too much flesh to stand heavy work day after day; but I believe that this extreme is seldom met. The poor horses seem to be willing and anxious to please; in fact, the greater part of them showed more life and energy than I expected horses to show when their ribs and joints are almost protruding through the poor hide that covers the animals. How I *did* long to see what the effect would be to give them all the grain they could consume, especially while they were on the job! Quite a few fell down from exhaustion (or swearing—which was it?) and had to be turned off by the boss as unfit for the work.

One afternoon, toward night, I saw a poor heavey horse panting to such an extent that its eyes fairly stood out in their sockets. As it pulled the scraper to the top of the heap of soft dirt, it swayed one way and another, and trembled as if it were almost ready to fall down in its tracks. Besides this the blood was streaming from one of its legs. It had been hurt in getting through a bridge some days before. A bandage had been put over the wound; but the heavy work had knocked off the bandage and started the wound afresh, and loss of blood, probably, had something to do with the exhaustion of the poor animal. It seems to me, that a man who would work a horse under such circumstances, simply because by doing it he could get $3.75 a day, ought to be horsewhipped himself. But this would not be the method taught by Christ Jesus. I saw him before I had reached the spot, and asked the boss why he allowed the man to work with such an animal. He said there were certain reasons why he did not like to interfere, but he had been rather hoping somebody who belonged to the Humane Society would come around, and then he would have good authority for ordering the man to take his horse home. Is not this a hint to the workers in the Humane Society? The team came near where we were standing. Said I, "My friend, do you think it right to work a horse under such circumstances?"

"Well, I suppose it is not exactly the thing. But I have no other horse to put in; and unless I use him it throws me and my other horse out of work."

I told him I was a member of the Humane Society, and I thought he had better not work the horse any more, especially while he was in that condition. The boss then very readily indorsed what I had said. Now, friends, he who acts as an officer of the Humane Society needs much skill and judgment, and knowledge of horses. A horse really *unfit* for work, in the hands of an ignorant, swearing man, and one with poor judgment, might do very well, and work without very much fatigue, under the guidance of an experienced, competent, kind driver. In all my work in life I am pained almost constantly to see waste labor and waste motions. In this simple matter of drawing dirt, the horses were sometimes driven many weary steps that were entirely useless. After the scraper is emptied, the thoughtless driver frequently goes quite a distance, instead of turning back promptly as soon as his work is accomplished. Awkward, blundering drivers pull the horses away over to one side until they are out of the path, and then, with curses, jerk them back the other way, when the fault was entirely that of the *driver*, the poor horse having been *perfectly* obedient to the pull on the lines. Why, it is enough to make one's blood

boil to see it. And this matter of letting boys who are too small or too young, worry a team until it is tired out; and I have seen horses thus worried and fatigued, when, if let alone, they would have shown much more intelligence than their driver.

If I was disgusted with mankind during these days of experience, I was at the same time taught to reverence and respect the intelligence of these dumb friends of ours. When the cut became quite deep, steep passageways were made through the bank, to enable the horses to get up with their load. As the pile of dirt became higher, these steep roadways became steeper and steeper. The horses that had had no drill on the work could not go up and down them. But these faithful friends soon learned to plant their feet where the road was so steep that they literally slid down, as boys slide down the cellar-door. They soon learned, too, to do their work carefully and easily if they were not annoyed, yanked, jerked, and pounded by a blasphemous driver. Did you ever watch a horse when its driver was swearing at him? See how his naturally bright eyes settle down into a kind of dull, hopeless despondency. His ears, that are usually ever in motion to catch the least word from his master, drop back sullenly as if he had decided that it is of no use to try any more; that the only thing was to plod along as best he could—"bear the toil, endure the pain." Dear friends, do you ask why I stop in quoting these closing lines of my favorite hymn? I stopped because the poor horse, so far as we know, has no such support as we have. The God who made him has never given him, so far as we know, a promise of some wonderful reward in the unknown future, if he is patient and faithful and kind. If this is true, oh how much more does it behoove us to treat him as one of God's creatures, and, out of respect for the great Father above, if nothing more, treat him kindly and lovingly; to recognize him as a great and precious gift from the loving Father above!

Of course, our big Clydesdale team was working near them, moving the rich soil from the surface of the ground. Most of the railroad men stopped, sooner or later, to admire and point out the contrast between such a team and the rest on the job. Our team did their work easily and well. They filled the largest scrapers on the ground, without sweat or fatigue. Somebody started a report—I do not know how—that there was not a man on the grounds who could stall them by setting the scraper down into the hard ground. These horses have seldom if ever been tried to their utmost. They hardly know what it is to undertake to move something and fail. The boss came along one day, and jestingly asked the driver if it were true that nobody could hold them with a scraper. Several were standing around, while the driver quietly remarked that he did not remember that anybody had ever yet stalled them. Now, there was a hard-wood stake a little ahead that needed grubbing up, but nobody had yet got around to it. It was pretty well covered with dirt. The driver knew where it was. As the boss took hold of the scraper and loaded it up, the driver turned the team in the direction of the stake. Just as the boss got ready to show his skill, the driver gave the big team a signal. There was a burst of merriment as the boss picked himself up from over between the horses; and he just happened to remember then that he had urgent business on another part of the grounds. Finally, as the men were crowding upon us with additional teams, old Charlie, who draws the market-wagon, was hitched to a smaller scraper, and set to work. I intended to get along soon, and give the driver directions; but something called me; and, before I knew it, good faithful old Charlie was panting for breath, and would probably have come pretty near falling down too had not somebody interfered.

Let me explain a little. Old Charlie was purchased some time ago, at an astonishingly low price, for so large and fine-looking an animal. After the purchase, however, we discovered the reason for the low price. He was wind-broken. He will pull an enormous load, and walk faster than any other horse I ever saw, if you keep watch of his wind, and do not let him overtask it. With a careless driver, however, and one who is unused to his infirmity, he will, if pushed, get out of breath and fall down in the road. He has done it several times—not of late years, however, for I will not permit it. At one time in his life, old Charlie was a celebrated walker. He would walk ahead of any horse in the surrounding country; and he is often now so ambitious that, if not constantly watched, he will lose his wind. Over two years ago, during the hot, dusty weather, he gave out, and most of the horsemen said he was used up, and that I had better "trade him off," or take him off and shoot him. I sent for a veterinary surgeon, and he said the horse was just as good as he ever was, if rightly treated. We had been feeding him dry chop feed. The surgeon forbade that, and said we should give the horse corn fodder, little potatoes, or any thing that he seemed to want, instead of dry grain, and he would do his work without trouble, providing we remembered to keep careful watch and not let him go beyond the limit of his wind. To-day you could not buy old Charlie for $150. With all Charlie's ambition and great strength, he is nervous and impatient at any thing like being yanked and nagged, especially by small boys. If anybody comes around him whom he thinks may be inclined to take delight in worrying him, he bites savagely. I have been told that boys punch him and pinch him for the purpose of seeing him act up. If he gets worried or excited, it increases his infirmity. By the way, friends, isn't that the case with almost anybody? Well, after I explained to the driver Charlie's good points as well as his weak ones, I told him that he must work on all the dirt that was to be drawn a *short distance*—let the big Clydesdale team take the long pulls. In a little time I saw Charlie doing "big work," and doing it easily, and apparently enjoying it. Several remarked, before long, that old wind-broken Charlie would move more dirt than many of the *teams* on the job. I spoke to him approvingly several times as I passed by; and knowing his disposition as I do—his wonderful energy and ambition—it just seemed to me as though I should like the fun of working side by side with old Charlie, every day of my life; and I am sure I could make him happy; and I feel equally sure that old Charlie, with his great energy and faithfulness, would make *me* happy. Dear reader, is it your good fortune to own a horse or to work with one? Make that horse your friend, and I assure you he will do his best to make himself *your* friend. Last night my wife asked me if it did not seem strange that man and wife should get along so nicely together, while each one would get along so uncomfortably without the other. I replied that I did not think it at all strange, because it is a relation of God's own planning; and it seems to me just now that the relation betwen the horse and his owner is much that same way. Neither would be happy without the other. But when the two work together in a loving and friendly way, it seems to me as if God's blessing rests on both. I do verily believe that we are only carrying out God's plan in the beginning, in these relations with our domestic animals; and whenever we fall in line

with God's plans we may be sure a blessing will follow.

A few days ago a horse was wanted to pull brick, by means of a pulley, to the top of an elevated reservoir. One of the Clydesdales happened to be in the stable. The man who usually handles him was away with the other. The question was asked if it would be safe to set Jack at that work. A wrong move might endanger the lives of the workmen on the scaffold. I told them that Jack would be perfectly safe if a good man would stand by him till he comprehended what was wanted of him. As his surroundings were strange, and his daily companion was absent, he seemed at first a little fidgety; but I carefully explained to him (you need not smile at this) what he was to do; and after he had taken half a dozen trips he stopped promptly when the mason called from the top of the tower to hold on; and in fifteen minutes more, to the merriment of the boys, Jack, after hearing the call, "Hold on!" turned around with his whiffletree and marched back to the point of starting, without any help from any one. The mason now called from the top of the tower, saying that we should put a little bit of white board on the grass, right where Jack was to stop, and that the horse would walk right up to that board, and stop every time. This he did all the rest of the day, without making a single mistake or blunder. It was evident that he kept watch of the movements, for he looked up to the top of the tower occasionally, as if he were taking in the whole plan of proceedings. I would rather have a smart horse for my helper than a dull man. The horse generally has his mind on his work, and knows what is going on, while the man sometimes does not.

Now, there is one point I think I must take up in this paper, or else some of my good friends who know more about horses than I do might call a good deal of my talk all "folderol." It is this: While kindness and gentleness and love are always in order, firmness and decision are also needed almost constantly. A few days ago we wanted the Clydesdales to pull a stick of timber up to the large underground reservoir. There was a roadway down into it, where they draw out the dirt, and the horses evidently took it for granted that the driver meant to drive them down into that fearful hole. *He* knew what he wanted, but *they* didn't. They began to snort and prance, and finally one turned one way and one the other. Lines and traces were getting badly tangled. Three or four men took hold of them, and tried to straighten them out; but what can a man do with a horse of such tremendous weight and strength? Why, a man's strength would be as nothing, and I expected to see a regular smash-up. The driver gathered up his lines, and, with a yell, commanded the horses to straighten out, hitting them a good clip by way of emphasis. His voice, which they knew, was of more weight to them then than all the men whom they *did not know*, and they straightened out in their places in a twinkling. They trembled with excitement; but for all that, they obeyed orders. A thousand times, valuable human life might have been saved by prompt energy and decision, by the free use of the whip, or perhaps a club, or any thing that could be got hold of, to let them know who is master; and a man or woman who would complain of cruelty to animals under such circumstances, is simply weak and childish. Of course, the driver should hold his temper, and not a single blow should be struck more than is necessary to enforce obedience; and under no circumstances should they be pounded or whipped after they have been made to obey. Old Charlie draws kindling-wood every afternoon. The new building, however, has cut off his regular path so that he has to back around in order to load up the kindling. But this could be managed easily if he would go into a narrow alley and back up until his nose nearly touches the new building. His driver said he could not make him do it. I told him he must whip him until he *did* do it. He said whipping did not do any good. By my orders he showed me how he acted. Charlie went almost far enough, then pranced and snorted, and, in spite of the whipping, he backed the wagon the wrong way, and smashed it into some other things where he might have done injury. I looked around until I found just what I wanted. It was a narrow strip of barrel-stave. Charlie saw what I had; but he had evidently made up his mind that he was not going up on that walk, even for *me*. I told him where to go, and led him up. He stopped as before, and I gave him one pretty good whack on his great fat haunches. He went ahead a little further, and then threw up his head and began to back as before. Then I gave him such a slap it made him grunt a little. But he was not quite conquered. The third blow I gave with all my might, and he walked up as meek and obedient as a child. Since then he goes right up in that place without any more foolish actions and display of his notions and stubbornness. Now, a horse, like a child, sometimes enjoys this sort of fun—a conflict with authority. It is rare fun for him to discover that his master has not force and decision enough to make him do what he ought to do; and it is like cows with a broken fence. The more times they jump over, the more and the higher they try to get over after it has been fixed. This question of who is going to boss things is sure to come up sooner or later between the horse and the owner. The owner should be careful about insisting on any thing that endangers the horse's safety. He should also beware of giving command where he is not well prepared to *enforce* obedience. Horses have better memories than we do. I have sometimes thought, too, that they have a *wonderful* faculty for taking a man's full dimensions. Let a stranger take hold of the lines or attempt to give orders, and they *very soon* decide how much "lord of creation" there is in this new master or new driver. Now, do you suppose a horse thinks *less* of you when he finds that you are not to be trifled with, and are fully competent to rule? Why, bless you, no. It is with a horse as with a child. His *love* for you is in close relationship to his *respect* for you. He loves the hand that *makes him mind*, a hundred times better than the one who lets him have his own way in a feeble, helpless sort of manner.

Now, dear friend, whose eye rests on these pages, if you have any thing to do with horses, please look upon them as one of God's most precious gifts. Do not scrimp them in feed; do not scrimp them in nice pure water. Take pains to carry them the apple peelings and cores—that is, if you can not afford to give them whole apples. If they like potatoes, as Mike and Charlie do—yes, and Billy (he is the one that ate the peck when they were $1.20 a bushel), give them the small potato-peelings. Sift out the dirt so they will be nice and clean. Give them the sweet corn after the ears are plucked, and all the dainties that they like, that the house affords. Teach the children to love them and care for them; but at the same time, if you would win their respect as well as their love, teach them to be obedient. Be *patient* and *long-suffering* with your horse. He knows when you give way to temper, just as well as any human being knows; and you sink in his estimation the minute you do so. *He* knows when you strike him or scold him for something

that was not his fault; and he is ready and quick to write your name down in that wonderfully accurate tablet of his horse memory. You can not apologize to a *horse* as you can to a *man;* and it will take you a long while to wipe out the memory of some undeserved insult. God gave you sense and reason and *dominion;* but he gave the noble horse, too, a kind of sense and judgment and wisdom that oftentimes comes very near the God-given intellect of humanity.

In closing, permit me to print again something that appeared in GLEANINGS for November, 1882.

My friend, are you and your horse good friends? Do you love him, and does he love you? Does he know, whatever comes up, that you are his friend? Do you know, whatever comes up, that he is *your* friend? Have you such a broad charity for him, that, when he makes a mistake, or doesn't understand, you are kind and patient with him, instead of calling him a fool, or saying he doesn't know any thing? Has he such confidence in you, that, when you make a mistake, and once in a great while (?) speak cross, or "holler" at him, he will forgive it and not be stubborn and contrary? When you work together, are your relations of a truly friendly nature? Is the service a loving service on both sides? May be your horse is old; may be he is one of the dull kind; may be he is lame or blind; if so, and you are even a little bit of a Christian, you are all the more bound to bear with him. Don't you think old and broken-down horses can appreciate kindness? The kindest man I ever saw to his horse and cow is Professor Cook. I don't know but the kindest horse and cow I ever saw were Professor Cook's too. I have sometimes wondered whether they, too, with the rest of the Michigan people, know that he is professor of bugs and insects, and feel a little bit proud of their office of helping him along in his work in the Agricultural College.

If your horse is poor, I don't know how we can make any excuse for you; in fact, I don't know how God can excuse you. Starving the ground may not be a cruelty; but starving a horse, and then asking him to work hard every day, is one of the worst things I know of. If I wanted to pick out a Christian, I should look for somebody riding behind a horse that was fat, sleek, and happy. I don't so much care if he does ride in an old rickety buggy, for buggies don't get tired (only at the blacksmith shop) and *cross;* but when you are weak, faint, and hungry, how would you like to draw some stingy old curmudgeon through the mud? Our Jack is about 18 years old; but I have lately made the discovery, that, when he is fed regularly and well, and is watered at least three times a day, he marches out of his stable, with head up, as much as to say, "Hurrah, boys! come on with the buckwheat or rye you want sown; and if you have any hard work to do, just mind your whiffletrees are strong."

You see, Jack has all his life been celebrated for breaking whiffletrees; and when a load doesn't come, and he is urged the second or third time, he will lie down to work with an air that says, "All right, if you want something to come," and something *does* come too. Sometimes it is the whiffletree, and sometimes it is the whole forward end of the wagon; but to do this, he must have good food, and plenty of it. Now, mind what I tell you: Neglect of or unkindness to your horse will surely stand in the way of your peace with God, and your highest happiness here on earth.

Poor faithful old Jack! After giving a life of almost twenty years of faithful service to our family, letting each new baby learn to drive by holding his lines, and learn to ride by trying to sit astride of his great broad back; after carrying the whole family, singly or collectively; after pulling boxes and packages through the mud, for our whole factory, almost, and never flinching, poor faithful old Jack lost his life by the burning of our warehouse, March 7, 1886. He was the especial property of my wife, having been raised by her father; and now the only memento of this faithful old servant is a blackened horseshoe. May God help us to remember these household treasures while they are with us!

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

STRAWBERRY-RUNNERS, AND HOW TO GET THE LITTLE PLANTS EQUALLY SPACED AT THE LEAST EXPENSE.

Terry, in his book, recommends letting the runners go—that is, with some care and directing, and finally, late in the fall, to cut out with a garden trowel, or similar implement, all surplus plants so that no two plants stand nearer than six inches apart. Mr. Pierce, in the *Ohio Farmer*, suggests that it is much cheaper to accomplish the same thing by spacing the runners, putting the little plant where it ought to be, and holding it down with a piece of dirt. We have for years practiced both ways, and we have also practiced letting the runners and plants follow their own fashion. Now, I am quite sure that very much may be gained in quantity and in size of fruit by judicious spacing; but at present I am unable to determine which is the cheaper—probably a combination of the two ways; and this is really the plan which Terry recommends. We have been in the habit of having boys take care of our strawberries to a large extent; but our Gandies and Bubachs, put out in July, have now set so many plants that it is getting to be a complicated matter for a boy. First, I tell them the runners must be swung around so as to be out of the way of the cultivator, at the same time spacing them so that none shall be nearer than 6 inches. Second, sometimes the runners cover the ground thickly on one side, and few or none on the other; therefore a part of them must be swung around when the case demands it. Third, if one plant sends out a great number of runners, and its neighbor on the other side but few, then the greater part of them should be swung around so as to fill up the space around the feeble plant. You can teach a boy to remember *one* thing pretty well; but when he has got to keep in mind, all at once, *three* things—namely, the path of the cultivator, keeping them 6 inches apart, and filling the vacant spaces, it is too much for him. A man or a pretty good-sized boy, and one who can keep his mind constantly on his work, is demanded for it. Oftentimes the plant has taken root before we get around; and if it has gone out at right angles, right in the path of the cultivator, it had better be moved. Now, pulling them up is not a good way. After a little plant has put out white roots, and got a good hold on the soil, it seems to be discouraged by jerking it out; and unless rain follows, the roots will not take hold of the new place. It is just as quick, and a good deal neater, to remove a little ball of dirt with the plant, by means of a common garden trowel. If, after all, the plants start too thick, and some of them *must* be taken out, do not do it by pulling them out nor by digging them out. Friend Terry has the credit of originating, if I am correct, a much quicker and simpler way. Slice off the top of the plant with a sharp garden trowel, just below the crown. If you cut too low you make unsightly holes in your strawberry-rows. If you do not cut *low* enough, the plant will start to grow again. With those who have only a few plants in the garden, there is no trouble about spacing them where you want them, as fast as they push out; but for field culture, getting the plants so as to

make a good stand over the ground and not be crowded is one of the main points; and it is something that costs quite a little labor, too, to have it done well. I mention these things now, because it is time to get right at it. With a favorable fall, we expect our plants to put out runners and make new plants for fully a month yet; and we also expect these new plants made in October to bear fruit next year. If they keep on pushing out and taking root clear into November, I am going to encourage them in it all I can. Our plants put out *in August*, with the transplanting-tubes, are also making some very handsome new plants.

EDITORIAL.

He paweth in the valley, and rejoiceth in his strength. He goeth on to meet the armed men.—JOB 39:21.

WE have at this date 10,112 subscribers.

THE two car loads of honey mentioned on next page have arrived *in excellent order*.

NAMES OF PARTIES THAT CAN FURNISH MOSS, AS MENTIONED ON PAGE 680, LAST ISSUE.

UP to the present date, only three names have been sent in; namely, C. H. Welch, Krumroy, O.; Christian Weckesser, Marshallville, O.; C. Gere, East Springfield, Pa.

THE BENTON CAGE.

AS the essential features of the cage we have been using for the past season were borrowed from the above, we have decided to credit friend Benton $50.00 for what the benefit his experiments have been to us.

INTERNATIONAL AMERICAN BEE-ASSOCIATION.

THIS will meet in Keokuk, Iowa, Oct. 29, 30, and 31, as will be seen from the convention notices, printed on page 711. It has been a rather bad year, and it is possible that some members may not feel able to stand the expense of attending this year. However, we hope there will be a large *local* attendance at any rate. Our friend C. P. Dadant has done some effective work, and his efforts will very likely make the attendance as great as heretofore.

LOOK OUT FOR THE GOLDEN BEE-HIVE.

OF course, our older readers will not need any caution, as it has been shown up again and again. Some of our younger ones have not, however, got thoroughly posted, as is evident from the following:

Can you tell me whether a man by the name of Jas. B. Pickerl has any patent on the "Golden" bee-hive? He has sold a great many farm-rights through here for $10.00. W. HINES.
Mt. Airy, N. C., Sept. 5.

You will remember that it is the Golden bee-hive men who have forged a testimonial from Prof. Cook; that is, they in their circular publish a testimonial from Prof. Cook, and yet he not only never used it, but he never *saw* a Golden bee-hive in his life.

BEE-CONVENTIONS; HONEY AT HOTELS, ETC.

SCARCELY ever have we attended a bee-convention when we found good honey at the hotels, or the hotels where special rates have been made for bee-keepers. By way of suggestion we would recommend that the secretaries of bee-associations see that the hotels which are to accommodate bee-keepers be supplied with first-class honey, both comb and extracted. When bee-men go away from home, they ought to be treated to something as nice as they would have on their own tables. At the International, at Keokuk, in particular, we would suggest that Mr. Dadant, the secretary, procure samples of the finest alfalfa, mesquite, and white-sage honey, that can be obtained, both in the comb and extracted form, the same to be sold to the hotels granting special rates, at a reasonable price. If possible, let there be other samples of honey whose exquisite flavors are unknown to bee-keepers in general. It will be a grand time to have table-talks on the relative merits of the honey while the delicious article is melting with its sweetness in the mouth. If Mr. Dadant can not procure the mesquite and the alfalfa, as well as some of the white mountain sage, we will try to assist him. We make this suggestion public to Mr. Dadant in order that the smaller and affiliated associations may take the hint in time.

HONEY GETTING SCARCE.

IT is pretty evident, from quotations in the honey markets, that our product is going to become pretty scarce before another season; and while bee-keepers have suffered from a poor year, perhaps the price may rise to such a point where it can be held, even when honey becomes more plentiful; and thus a poor year may be a blessing in disguise. The fact that there is a big demand for honey, shows that the general public are learning to use it more and more as an article of food—if not the honey itself, in honey-jumbles and other baker's cakes. By the way, there is getting to be

AN ENORMOUS HONEY-JUMBLE TRADE.

Crawford & Taylor, the celebrated bakers of Mansfield, O., are actually using four barrels of off-grade honey daily in the honey-jumble business, and this is only one baking establishment. Not only are they making jumbles of honey, but other delicious cakes as well. Now, then, what bee-keepers have to do is to help these bakers all they can. Inquire for honey-jumbles at your groceries and baker shops. Buy some yourself, and invite your neighbors to try them. This will not only stimulate the honey-jumble business, but it will make a splendid outlet for off grades of honey. Say, Mr. Dadant, why would it not be a good idea to have a variety of honey-jumbles and other cakes made from our product, at the Keokuk hotels? Just include these in your bill of fare with the honey. Oh, yes! be sure to invite reporters to come in and take dinner with us, and then we will suggest the propriety of their using their pens in describing our delicious product.

THE A B C OF STRAWBERRY CULTURE.

After a few sample copies had been sent out, we learned that there is already a book in print entitled, "How to Grow Strawberries." On this account we have changed the title of our book as per above heading.

SETTING STRAWBERRY-PLANTS IN THE FALL.

Our good friend I. A. Wool, of Elsie, Mich., naturally felt a little bit hurt at friend Yoder's protest in regard to advertising strawberry-plants in August, for next year's fruiting. He writes us, however, that every customer of his is furnished with a little pamphlet, entitled, "The Secret of Success in Growing Small Fruits," and in his pamphlet occurs the following paragraph:

Plants may be set in August and September, and, if well cared for, will produce a fair crop of berries the following season. Some of our nicest berries are grown on this plan; and had we failed to set out a bed in the spring, we should by all means set it at this time, thus securing a supply of berries for the coming season. But as a rule we think it preferable to set in the spring, thus securing a full crop for the following season.

As the matter stands, I do not think there is very much danger of any of the readers of Gleanings being misled, either by the advertisement or by what has been written on the subject.

INFORMATION WANTED IN REGARD TO ALFALFA FIELDS.

One of our correspondents, Mr. O. R. Coe, of Windham, N. Y., not being able to winter his bees on the mountains, or, rather, to bring them through the spring months, proposes to move his apiary to some alfalfa field in Colorado. He has written to us for information; but as we are unable to give him very much, we have concluded to call upon some of our subscribers better situated to do so. In a letter received, he says:

I desire information as to honey resources, etc., of different places in alfalfa districts of the Southwest, especially along the line of the Arkansas River from Canon City, Colorado, to Garden City, Kansas. From all the information I can get thus far, I think Canon City the place, as there are thousands of acres of alfalfa there (yet more at Rocky Ford and other places), and it is the largest fruit-growing place, so far as I can learn, in the Southwest, and that would give an earlier flow of honey than places where only alfalfa is grown, would it not? I should like to know where the principal alfalfa districts are, and also where it is grown largely, and where fruit and other honey-blossoms abound. O. R. Coe.

Windham, N. Y., Sept. 15.

A letter directed to Mr. O. R. Coe, as above, will confer a very great favor on a fellow bee-keeper. Mr. Coe says he can winter bees until about March 1, and then he experiences the difficulties of spring dwindling during the long and backward cold weather upon the mountains, and usually loses the greater part of his bees. He proposes to try the experiment of sending a carload to the alfalfa regions, either this fall or very early next spring, hoping thereby to put them in a locality where bees will not have to contend with the spring troubles, and may at the same time bring him remunerative returns in the way of honey. We shall watch his experiment with interest. Friend Coe will probably enlighten us upon the success or failure of his project.

Special Notices.

WANTED—GLEANINGS FOR MAY 1, 1890.

We will pay 10 cts. each for the above if sent at once. Now, be sure you do not send any other; and do not send any at all unless you can do it right now.

TWO CARLOADS OF HONEY EXPECTED DAILY.

We expect, before this number reaches our readers, to receive a carload of white-sage honey from L. E. Mercer & Son, of Ventura, Cal.; and, judging from the sample we received, we have a treat for those who want a fine article. This honey is whiter than any we ever saw gathered east of the mountain regions of the West. It is almost as white as water, and very thick. This sage honey is also remarkable for the length of time it will remain liquid. It granulates less than any other kind of honey we know of. A small sample mailed free. It is put up in 60-lb. cans, two in a case, and the price of from one to five cans will be 11 cts. per lb.; 3 to 10 cases, 10 cts. per lb.; 10 cases or more, 9 cts. per lb.

COMB HONEY.

We expect, about the same time, a carload of comb honey from W. K. Ball, of Reno, Nev. We have not had a sample of this, but are assured that it is equal to the sample he left with us nearly a year ago. That sample was no whiter than the whitest Eastern honey, but the body of the honey in the comb was so thick that it would hardly run, and the flavor was so mild and pleasant that it was pronounced by all who sampled it to be the best they ever tasted. This honey is gathered almost wholly from alfalfa bloom. When Mr. Ball wrote last, a few days ago, he said the bees were busy on the second crop, rolling in the beautiful honey at a good rate. This comb honey comes in cases holding 24 and 48 1 lb. sections each, the net weight being about 23 and 45 lbs. each, and there are 32 cases of 2-lb. sections, 32 in a case, weighing about 60 lbs. net. The prices will be as follows:

One to three 48-lb. cases, or one to six 24-lb. cases, 20 cts. per lb.

Four to eight 48-lb., or 7 to 15 24-lb. cases, 19 cts. per lb.

Ten or above 48 lb. cases, 20 or over 24 lb. cases, at 18 cts. per lb. Two-lb. sections at 19 cts. per lb., one or two case lots; 3 to 5 cases, 18 cts. per lb.; 6 or more cases, 17 cts. per lb.

There are also in this car of comb honey, 32 cases of extracted honey, which, judging from a former lot received from Mr. Ball, is extra fine. Price, same as the white sage.

THE DEMAND FOR HONEY.

We never saw any thing equal to the present demand for honey. We get daily upward of a dozen inquiries, and several orders. You will notice in the Honey Column that the commission houses report the market in a better condition than we have seen it for some time. We quote the following from the *American Bee Journal* for Sept. 20:

THE TUNE HAS CHANGED.

The Kansas City honey market report on page 637, says that "the demand for comb honey is larger than the receipts." Yes; and it is likely to be. Quoting it at 16 cents is a farce! Any white comb honey sold at retail for less than 25 cents per pound this year is sacrificed! Bee-keepers should demand that the very meager crop shall bring all it is worth. Chicago quotations are 18 cents, but that is too low. Hold on to the product.

The carload of honey from Arizona is all gone, but the No. 2 grade, which we offer at 1 cent per lb. less than price quoted on sage honey elsewhere. Samples mailed free. We have advanced our quotations, partly because of a better article, and partly because, in the present state of the market, it is worth more. We should be pleased to hear from bee-keepers who have not enough to supply their home demand, and all others in want of honey.

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Send 25c For my Book of Discovery and Invention. **The Queen Restrictor.** Address
20d C. W. DAYTON, Clinton, Wis.

☞In responding to this advertisement mention GLEANINGS.

500 Italian Queens For Sale. Tested, $1.10, three for $3.00. Untested, 70 cts. each; three for $2.00 Also bee-keepers' supplies, etc. 16-page circular free. 15tfdb
JNO. NEBEL & SON, High Hill, Mo.

BARRED PLYMOUTH ROCK COCKERELS, $1.00; hens, 75c. Also Quinby hive corner clasps for sale. 20tfdb L. C. AXTELL, Roseville, Ill.

FOLDING PAPER BOXES.
CRAWFORD'S SECTION CARTONS ARE THE BEST.
Send for free sample and price list, and find out the reason. A certain fact has come to our knowledge that is worth dollars to *you*. Send for it.
A. O. CRAWFORD, S. Weymouth, Mass.
12tfdb Please mention this paper.

BEES SEND for a free sample copy of the BEE JOURNAL — 16-page Weekly at $1 a year—the oldest, largest, and cheapest Weekly bee-paper. Address
16tfdb **BEE JOURNAL, Chicago, Ill.**

To BEE-KEEPERS!

IN ADDITION to our New England **Honey Trade** we have leased a Store in New York City (in the best possible location to catch the Grocery Trade), and propose handling

COMB AND EXTRACTED HONEY

there. As we have been practical Bee-Keepers and have had some 12 years' experience in the Honey Trade (during which time we have handled MORE HONEY than any House in New England), we feel justified in saying that we understand the Honey Trade, and think we can handle your **Surplus Honey** to the very best advantage.

We shall endeavor to make Quick Sales at the **very highest prices,** and by making prompt returns we hope to merit your patronage. Advances made when requested. Stencils furnished — also printed instructions for Packing and Shipping, giving valuable information gained by our experience in Shipping Honey by the Ton and in Carload lots.

Correspondence, Visits, and Consignments Solicited. Address

F. I. SAGE & SON,

183 Reade St., - - NEW YORK, N. Y.

☞ No Consignments received at Wethersfield, Conn.

REFERENCES.—Bradstreet's and Dunn & Co.'s Commercial Reports, under *Wethersfield*, Conn., heading, and the numerous Bee-keepers whose Honey we have handled the past 12 years.

18-23db Please mention this paper.

BEST ON EARTH

ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.
Bingham's Patent Smokers,
Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	...$2.00
Conqueror "	3	"	"	... 1.75
Large "	2½	"	"	... 1.50
Extra (wide shield)	2	"	"	... 1.25
Plain (narrow ")	2	"	"	... 1 00
Little Wonder,	1¾	"	"	... 65
Uncapping Knife.....				..1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.
☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Neb.; G. L. Tinker, New Philadelphia, O., E. Kretchmer, Red Oak, Ia ; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.;** R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,
REVISED.
The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to
4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.
☞In responding to this advertisement mention GLEANINGS.

SCOTCH RABBITS. Will sell a few gray Scotch rabbits, Samuel Wilson's strain, at $3 00 per pair. Order quick if you want any. 19tfdb
E. HOSTETLER, East Lynne, Mo.

Special Notices.

DISCOUNTS FOR EARLY ORDERS.

We call your attention to our advertisement on the cover of this number, setting forth the advantages of sending your orders early for goods for next season's use. Five per cent allowed on orders during the next two weeks. Remember, this does not apply to honey, honey-packages, and such goods for immediate use or sale.

PERFORATED ZINC ADVANCED AND IMPROVED.

We have for a year past received at intervals of several months notice of a slight advance in sheet zinc. These advances now aggregate so much that we are compelled to advance the list price 20 cts. per sheet, 28x96, and 20 c. on 10 honey-boards Nos. 1, 2, 3, 4, and 13. Revised table of prices will be given in next number. To compensate you for this advance we wish to say that we have just completed a new die for our zinc-perforating machine at an expense of about $75, and we have spared no pains to make it absolutely perfect. Each of the 70 holes in the die measures exactly $\frac{17}{100}$ of an inch, which is accepted as the correct size by several experts who have made exhaustive tests and experiments. The zinc we have made for two years past has given good satisfaction generally. But a few have reported that some queens will go through it. The new zinc will effectually stop all queens and still allow the workers to pass freely. Dealers in making up their price lists will please take notice of the above advance in the list price.

SELF-SEALING HONEY-JARS.

A few weeks ago our attention was called to a new jar for honey by M. H. Hunt. He had some at the Detroit exposition, and spoke of the way it seemed to please all who saw it. He kindly gave us the name of the manufacturers, and we wrote them at once for samples, and now have 15 bbls. of them in stock. The adjoining cut shows what they are like. The cover is glass with a rim inside projecting down about $\frac{1}{16}$ of an inch, and between the cover and jar is a rubber band. On the cover is a circular raised place with a notch in the top The tinned wire bail of No. 13 wire has both ends hooked into holes in the side like the oaken bucket tumbler or like a common wooden pail. Of course, the holes don't go through the glass. This bail is pressed up the oval incline till it snaps into the notch on top, which seals the jar as tight as a Mason fruit-jar. There are two sizes, one holding 10 or 11 oz. of honey, the other about 14 oz. We have them put up 150 in a bbl., either size. Price of large size, $8.60; of the small size, $8.00 per bbl. For a smaller quantity the price will be 8 cts. each, or 75 and 70 c. per doz., respectively. No charge for packages. In 5-bbl. lots direct from Pittsburg, Pa., 10 per cent discount from above prices by the bbl.

GLEANINGS FREE FOR THE REST OF 1890 TO NEW SUBSCRIBERS.

Now is the time for getting up clubs of subscribers and extending the influence of Gleanings. To make a greater inducement for those not acquainted with it to join our circle of readers, we will give the rest of 1890 free to new subscribers for one year; that is, all new subscriptions received after this date will receive Gleanings from the time the subscription is received till Jan., 1892, for $1.00. We will also include the *American Bee Journal* on the same terms for 75 cts. extra; *The Illustrated Home Journal* for 35 cts. extra, or all three for $2 15. You never had such an opportunity before of getting three such journals and such a length of time for so small a price.

GLEANINGS, 3 MONTHS' TRIAL TRIP, FOR 15 CTS.

If there are some who will not accept any of the offers above we are still desirous of having them become acquainted with Gleanings, and offer to send it 3 months on trial for only 15 cents. The journal will be stopped at the end of this time, unless you send a request to continue. Think of it—six numbers of Gleanings for only 15 cents! Will not many of our readers endeavor to introduce it to other homes on these easy terms?

SENDING GLEANINGS AFTER THE TIME PAID FOR.

We have adopted the plan of many papers, of sending Gleanings right along until we receive orders to discontinue; and the great majority of our readers who have expressed their opinion are pleased with this arrangement. It is more convenient to include a dollar with a remittance for an order for goods whenever one is sent in, and it isn't pleasant to have the journal stop when you want it to come along. We therefore continue it till we get orders to discontinue, because this plan pleases the majority. There are some, however, who take exceptions to it; and we want to say to these that we can accommodate them also if they will say, when they send their subscription, that they want it stopped when the time paid for is up. Unless you do this we shall keep it going till we have orders to stop it.

OUR BEAUTIFUL OCTOBER.

Did anybody ever know the like of it? Here it is the 14th day of October, and our garden-stuff is all growing and ripening as in June or July. Not even the lima beans have been injured by frost. We are having the finest cabbage, cauliflower, late Mammoth Sugar corn, cucumbers, lettuce, melons, peas, peppers, pumpkins, radishes, spinach, squashes, and last, but not least, the nicest Ignotum tomatoes we ever had in the world, and in the greatest abundance right here in the middle of October. And, oh my! how the strawberry-plants do grow! Our turnips have not as yet had frost enough to be real sweet, but they are growing beautifully. My friend, have you forgotten to be thankful?

CONVENTION NOTICES.

The next convention of the Turkey Hill Bee-keepers' Association will take place at the Turkey Hill Grange Hall, near Wilderman's Station, three miles southeast of Belleville, Ill., Oct. 30, 1890. All interested are invited. S. Braeutigam, Pres.

The Missouri State Bee-keepers' Association will meet in convention at Mexico, Mo., Oct. 22 and 23. A good programme, and an instructive and interesting time is expected. All persons interested in bee culture are cordially invited to attend. Good board can be obtained for 75 cts. per day, or 20 cts. per meal.
J. W. Rouse, Sec., Mexico, Mo.

KIND WORDS FOR OUR STRAWBERRY-BOOK.

The small treatise on A B C of Strawberry Culture, by Messrs. T. B. Terry and A. I. Root, is a big book in a small compass. It is primarily a farmers' book, and we would advise every farmer reader of ours to get one and read it.—*The Poultry Monthly.*

A B C of Strawberry Culture is the name of a neat pamphlet of 150 pages, by Messrs. T. B. Terry and A. I. Root. It covers the whole subject in an interesting manner, is nicely illustrated, and is just the work for those beginning to grow delicious strawberries. Price, postpaid, 40 cents. For sale at this office.—*American Bee Journal.*

An excellent little book is T. B. Terry's A B C of Strawberry Culture, just from the press of A. I. Root, Medina, Ohio. It contains 144 pages and a large number of illustrations, and will no doubt be of great value to all beginners in strawberry culture who have the good judgment to buy a copy and use it judiciously. The price is only 40 cents by mail.—*Colorado Farmer.*

I received from you a copy of Terry's book on strawberries, for which I am very much obliged. I have read every word of it carefully. As I raised strawberries in former years by the acre, I will just say it is a splendid book for beginners, and many growers could learn very much from it.
Platteville, Wis., Sept. 27, 1890. E. France.

A B C of Strawberry Culture is the title of a little book of 144 pages, written in two parts, the first by T. B. Terry, the well-known agricultural writer, who writes from his farm and what he sees and does, and not as a theorist. The other part is written by A. I. Root, the charming editor of *Gleanings in Bee Cul-*

ture. The book is a plain, practical set of directions for selecting, planting, cultivating, gathering, and marketing the berries. It is a common-sense sort of book, charmingly written, and we can only wish it were in the hands of every farmer in the land.—*The Western Farmer and Stockman.*

We have received from the authors, T. B. Terry and A. I. Root, a little book entitled the A B C of Strawberry Culture. It is really what its title indicates, and gives in plain matter-of-fact language practical suggestions regarding varieties, methods of planting, etc., so that a beginner, by following instructions, need not err in his efforts at growing strawberries.—*The Grange Visitor.*

The A B C of Strawberry Culture is the title of a little book by T. B. Terry, published by A. I. Root, Medina, O. The author has the candor to admit he has made mistakes, and has learned by experience enough about growing strawberries to make his little book of instructions well worth the price.—*Our Rural Homes.*

Black and Hybrid Queens For Sale.

I have 30 nice hybrid and 35 young black queens for sale. Send me 50c and get one of them.
16-17-18d A. D. ELLINGWOOD, Berlin Falls, N. H.

A few mismated Italian queens, young and prolific. Price 20c each. Order by postal and pay when queens arrive. C. A. BUNCH, Nye, Ind.

FOR SALE.
100 Colonies of Italian and Hybrid Bees

In two-story Simplicity hives (ten frames) chock full of bees, and plenty of honey for winter, wide frames, T supers; with sections and starters in upper story, complete, for $2.50 per colony, or offers.
ALBERT ARNOLD,
Newark, Independence Co., Ark.
☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS.

I have requeened my own apiary, with Italian queens from Alley's $100.00 queen. They are large and very light colored. I have a stock of fine young queens reared from the best of these, that I offer for 75 cts. each, or three for $2.00. Tested, $1.50 each. No black bees near here. Can fill orders promptly, and will guarantee safe arrival. Make money orders payable at Flint, Mich.
15tfdb ELMER HUTCHINSON,
Rogersville, Genesee Co., Mich.
☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. NOVELTY CO.,
6tfdb Rock Falls, Illinois.
Please mention this paper

EUREKA FRAME MACHINE.

Something every bee-keeper should have.
For price and particulars address
24-23db F. W. LAMM,
Box 106, Somerville, Butler Co., O.
Please mention this paper. 24-23db

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.
5tfdb CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.
☞In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

WANTED.—I will exchange sewing-machines, new, and fruit-trees, for honey. Address
15-24db E. PETERMAN, Waldo, Wis.

WANTED.—To exchange all kinds of nursery stock, peaches, pears, grapevines, raspberries, strawberries, etc., for foundation, beeswax, empty combs, or offers. Address T. G. ASHMEAD, Williamson, N. Y.

WANTED immediately.—A man to take entire control of 150 colonies of bees. For particulars address 10-20d S. A. SHUCK, Liverpool, Ill.

WANTED.—To exchange new Dibbern tin bee-escapes, brood-frames or hives, for empty combs (either L. or Heddon frame), foundation, or any other supplies. Write E. F. QUIGLEY,
19-20d Unionville, Putnam Co., Mo.

WANTED.—To exchange Italian bees in L. hives, for two well-trained fox-hounds. Apply at once to J. B. MITCHELL, Hawkinsville, Pulaski Co., Ga.
19-20d

WANTED.—To exchange Ply. Rock fowls, fine stock, for a lot of empty L. combs for extracting, or offers. T. G. ASHMEAD, Williamson, N. Y.
18tfdb

WANTED.—To exchange bee-hives for bees, will guarantee satisfactory hive. 18tfdb
LOWRY JOHNSON, M'F'R, Masontown, Fay. Co., Pa.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

WANTED.—To exchange a 200-egg Excelsior incubator, used one season; cost $25.00, for photographic outfit, books, or best offers. 19-20-21d
O. S. COMPTON, Glenwood, Cass Co., Mich.

WANTED.—To exchange a fine 2-year old registered Jersey bull, for extracted or comb honey, or offers. 19-20d B. T. BALDWIN, Marion, Ind.

WANTED.—To exchange a 6x9 self-inking press, an excellent outfit; cost me $80.00; four fonts of type. 19-20d L. L. ESENHOWER, Reading, Pa.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made.
EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

WANTED.—To exchange a three-sided 8-inch molder or sticker, for a pony planer, or I will exchange hives or one-piece sections for planer.
GEO. H. KIRKPATRICK, Portland, Ind.

WANTED.—To exchange bees, for a lathe, with scroll-saw attachment, a "Goodell" preferred. Write first, giving description.
O. G. JOSENHANS, Owosso, Mich.

WANTED.—To exchange full colonies of Italian bees and strawberry-plants, for comb or extracted honey. Make offers to
S. F. REED, N. Dorchester, N. H.

WANTED.—To exchange 5000 Jessie strawberry-plants and maple syrup, for Flobert rifle shotgun, ferrets, fruit-trees, grapevines, or any thing useful. BEN ZURCHER, Apple Creek, Ohio.

WANTED.—To exchange strong Cuthbert raspberry plants, for apiarian supplies or offers.
CHAS. HOWELL, Hackettstown, N. J.

WANTED.—To sell or exchange a hen (6 hens and 1 cock) of S. L. Wyandottes, Menger's strain, for nice extracted or comb honey. State price of honey.
W. M. BOLTON, McComb, Hancock Co., Ohio.

MY surplus stock of Italian queens at 50c each. They are young, laying, and pure bred.
E. D. ANDREWS, North New Salem, Mass.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Market remains in a very good condition, and we are are making quick sales at high prices. Fancy white, 1-lb., 16@18c; fair white, 14@16; 2 lb., white, 14@15; fair, 13@14; buckwheat, 1 lb., 12@13; 2 lb., 10@11. Extracted, white, 7½@8½; buckwheat, dark, 6½@7. *Beeswax*—Demand is small and prices declining in consequence of the effect of the McKinley bill, which makes beeswax free, whereas there was a duty of 20 per cent on the article formerly. F. G. STROHMEYER & CO.,
Oct. 8. 122 Water St., N. Y.

NEW YORK.—*Honey.*—Comb honey is now arriving more freely, but not enough to supply the demand. The market is firm, and following prices are obtainable: Fancy white, 1 lb., 16½@18; 2 lb., 15@16c; off grades, 1 lb., 14@16; 2 lb., 13@14; buckwheat, 1 lb., 12@13; 2 lb., 11@12 Extracted, white clover or basswood, 8@8½; buckwheat, 6@6½; California, white, 7@7½; amber, 6½@7; Southern, 65@70c per gal.
HILDRETH BROS. & SEGELKEN.
Sept. 27. 28 & 30 W. Broadway, N. Y.

ALBANY.—*Honey.*—We have received up to date, 872 cases of comb, and 73 half-bbls. of extracted honey. On Sept. 29 we sold every case we had in store, except four cases of old honey. Have never been able to do that before so early in the season. Prices are firm, as follows: Fine white clover, 18c; medium grade, 15@16; buckwheat, 11@13. Extracted, 7@9.
CHAS. MCCULLOCH & CO.,
Oct. 8. 339 Broadway, Albany, N. Y.

CINCINNATI.—*Honey.*—Demand is good for all kinds of extracted honey, and in all shapes, with a fair supply on the market. There is no comb honey on our market. A good deal could be sold, but no famine is created. Extracted honey brings 5½@8 cts. a lb. on arrival. Prices for comb honey are nominal at 14@16 cts. a lb. in the jobbing way. *Beeswax.*—There is a good demand for beeswax at 24@26 a lb. on arrival for good to choice yellow.
Oct. 8. CHAS. F. MUTH,
Cincinnati, Ohio.

COLUMBUS.—*Honey.*—White clover scarce, selling at 18@20 cts. for choice goods in 1-lb. sections. Prospects never better for selling large quantities. Extracted selling at 10@12 cts. per lb.
Oct. 7. EARLE CLICKENGER,
Columbus, O.

KANSAS CITY.—*Honey.*—We quote white 1-lb. comb at 16@18 cts.; dark, 12@14. Receipts light. We have received several cars of comb and extacted from California. We quote 1-lb. same as native; quote 2-lb. comb, white, 15@16. Extra C. and C., 14@15; extracted, 6@7 cts. *Beeswax*, 25 cts.
CLEMONS, MASON & CO.,
Oct. 10. Kansas City, Mo.

CHICAGO.—*Honey.*—Honey sells quite well, and that which is white and otherwise desirable brings 17@18c; but many lots are off in color, stained or dark; such is slow of sale at about 15c. Extracted, in 60-lb. cans and barrels, 7@8c, according to color, body, and flavor. The offerings are fair of all kinds, with a steady demand. *Beeswax*, 27.
R. A. BURNETT,
Oct. 7. 161 So. Water St., Chicago, Ill.

BOSTON.—*Honey.*—We quote our market on honey strong, 17@18 for white 1-lb. combs; 16@17 for white 2-lb. comb; 7½@8 for extracted. No *Beeswax* on hand. BLAKE & RIPLEY,
Oct. 9. Boston, Mas.

ST. LOUIS.—*Honey.*—There is no change in the situation. Comb honey continues very scarce, and would command a good price if choice. We quote: Extracted and strained, in bbls., 5½@6; cans, 7½@8½. Comb, choice white clover, 15½@16; dark, 13½@14½. *Beeswax*, prime, 27.
D. G. TUTT GROCER CO.,
Oct. 9. St. Louis, Mo.

DETROIT.—*Honey.*—No white comb honey to be had. Fall or dark is selling at 14@15c. Extracted, 7@8. *Beeswax*, 27@28. M. H. HUNT.
Bell Branch, Mich., oct. 9.

MILWAUKEE.—*Honey.*—This market is in good condition for honey. The demand is steady, and good values maintained, while the supply is fair to meet the amount demanded. Will quote choice white 1-lb. sections, 17@18; good, 16@17; dark, or old, 10@12. Extracted, in bbls., white, 8½@9½; in kegs or tin, 9@9½; dark, bbls. or kegs, 6@7. *Beeswax*, 26@30.
A. V. BISHOP,
Oct. 11. Milwaukee, Wis.

FOR SALE.—400 lbs. of fine white-clover honey, in 1-lb. sections, in any amount to suit. Price 16c per lb. HENRY WILSON,
Box 260, Clinton, Dewitt Co., Ill.

FOR SALE.—5000 lbs. extracted honey, all from basswood, and of excellent quality, in kegs of 50 to 200 lbs. capacity. Price 8c per lb., on board cars at Durand, Wis. Address
FRANK MCNAY, Mauston, Wis.

WANTED.—Extracted honey. Give kind, quality, and price. F. A. SALISBURY & CO., Syracuse, N. Y.

FOR SALE.—1000 lbs. of extracted honey, at 9c, in 60-lb. tin cans. Will deliver at R. R. My honey is very nice white clover, thick and white.
CALVIN LOVETT, Otsego, Allegan Co., Mich.

FOR SALE.—1200 lbs. extracted clover honey, in 60-lb. cans, at 10 cts. here.
R. H. BAILEY, Box 81, Ausable Forks, N. Y.

FOR SALE.—About 1000 lbs. fine clover honey, in two solid iron-bound well-waxed barrels. Price 8c per lb. here. O. H. TOWNSEND,
Alamo, Kal. Co., Mich.

FOR SALE.—5000 lbs. well-ripened extracted honey, in 60-lb. cans. C. H. STORDOCK, Durand, Ill. 18-23db

FOR SALE.—1000 lbs. white alfalfa comb honey, in 12-lb. cases, at 16c per lb.; also 4000 lbs. extracted, very fine, in 75-lb. cans, at 10c per lb.
J. T. CLAPP, Supt. Denver Land Co.,
19-22db Broomfield, Boulder Co., Colo.

WANTED.—One or two thousands pounds of nice comb honey. Write, giving amount on hand and price wanted. A. D. ELLINGWOOD, Berlin Falls, N. H.
17tfdb

WANTED.—White comb and extracted honey; state price, package, etc. B. WALKER. 17tfdb
Capac, Mich., or Prairie du Chien, Wis.

FOR SALE.—50,000 lbs. of extra fine sage honey in 60 lb. tin cans. Also two carloads of light amber honey, for sale at 6c per lb., f. o. b.
L. E. MERCER & SONS, Ventura, Ventura Co., Cal.
19tfdb

FOR SALE.—25,000 lbs. of the very finest honey, in scant 1-lb. sections; put up in white basswood cases, holding 12 sections. A very fancy lot. The price is 20c per lb. on board cars here. Who wants the lot? Address L. W. BALDWIN & SON, Independence, Mo.
19tfdb

FOR SALE.—50 one-gal. tin cans of white clover extracted honey; very fine and white, beginning to granulate some. I want 10 cts. per lb. here
G. L. JONES, Grand Ridge, LaSalle Co., Ill.

NEW FACTORY.

We will soon be in our new factory, which will be the largest and most complete in the world. We shall make the best of goods at lowest prices. We are ready for contracts for next season's supplies. Write us.

G. B. LEWIS & CO.,
17-tfdb **WATERTOWN, WIS.**

FOR LIGHT AND DARK FERRETS,
and pure Poland-China Swine, address
N. A. KNAPP,
Rochester, Lorain Co., O.
☞In responding to this advertisement mention GLEANINGS.

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SYRIAN BEES.

AN UNFAVORABLE OPINION OF THEM.

A correspondent writes that he is thinking of going into bee-keeping, and says: "I am thinking of starting with the Syrian bees. What do you think of them as honey-gatherers? A bee-keeping friend tells me that they are very prolific, and says he values prolificness in a queen above all other qualities. Is this right?"

Well, to a certain extent, yes; to a certain extent, no. A queen should be prolific at the right time; and if she is thus, it is of great value; if prolific at times when her brood comes on the stage of action when there is no honey to gather, her prolificness counts for naught. If your friend had modified his statement so as to make it read that he valued the prolificness of a queen above all other qualities when it could be so regulated that such prolificness would be of the greatest value to the bee-keeper, I would hold up both hands for it; but if his writing thus is to be interpreted to mean that he regards the prolificness of a queen at all times of the year above all other qualities, I must say that I think he is making a mistake. Here, where we have but about six weeks during the whole season in which the bees make any gain in honey, what we want is a queen that can be coaxed to fill the hive to overflowing with brood during a few weeks previous to this honey-harvest, and lay just as few eggs at all other times as is consistent with accomplishing the above object. If your friend had a piece of work which he must accomplish at a certain time, if he were to receive any profit therefrom he would hire his help before the time expired or not at all. If he wished help at a certain time and they did not come until it was too late, surely he would not keep and board them six or eight months because it was not convenient for them to come sooner. Oh, no! he would tell them that he did not want them, for it was too late. So I say, that, when bees come to the stage of action in any great abundance *after* the honey-harvest is past, it is a damage to the apiarist rather than an advantage. Why I prefer the Italian bees to all others is for the reason that they are more susceptible of being handled so as to get the hive overflowing with bees at just the right time than are the bees of any other race. Also, as soon as the honey-harvest arrives the queen will cease her prolificness, and thus we do not have a lot of "hungry hands" to board when they are of no use to the apiarist. To show that I am not alone in this, I will quote the following from one of our largest honey-producers:

"I get very much the best results from my purest and most yellow Italians. The Italians seem to be very much more disposed to partially stop brood-rearing, and bend all their energies to honey-gathering, whenever there is a heavy flow of nectar, than any other kind of bees which I have tried, and this is a very great advantage."

Now to the question about Syrian bees. That they can not be managed so as to fill the above requirements in this locality, is why I am averse to them, and I think that any one is making a mistake in selecting them as the bees with which to start an apiary. With me they would not start a large amount of brood at any other time save in a heavy flow of honey, and this I think is one of the worst faults that any race of bees can possess; for an extra amount of brood during the honey-yield always means a multitude of mouths to feed after the honey-harvest is past. When I tried the Syrian bees it was with the only hope that they would prove better than the bees which I already had; but when I found out that I could not coax the queens of this race to lay eggs rapidly except in the honey-harvest, I saw that it would be impossible for them to give a large yield of honey.

After doing my very best with them the second year, thinking that I might not have fully understood them at first, I was obliged to record only 50 lbs. of honey from the six colonies which I had, while I had to feed them a large amount to get them prepared for winter, taking combs of sealed honey from the Italian colonies to feed them with, while the same number of Italians gave over 500 lbs. of surplus during the same time and with the same management. With me the Syrian bees would increase but little till the honey-harvest arrived, when they would crowd every available cell with brood, which brood would use up nearly all the honey the few workers reared before could gather while the honey-harvest lasted. On the contrary, when the honey-harvest opened, the Italians would have a hive overflowing with bees, and every comb filled with brood; and this brood would gradually decrease till at the end of the harvest I had lots of honey and few mouths to feed. Here is an item which many bee-keepers seem to overlook in following their profession. Bees are of value only when they come in time to take advantage of the honey-flow; and whether through the race of bees or the carelessness of the apiarist we fail in this point, little profit, or none at all, is sure to be the result.

The same fault that I have spoken of in the above exists to a considerable extent in the Carniolan bees, or, at least, has done so in those I have had. While they can be brought up to rapid brood-rearing before the honey-harvest is upon us, which is different from the Syrians, yet they are determined to breed all through the honey-harvest, and to a large extent after it is past, so that, as a rule, unless they are looked after, many colonies are apt to be short of stores, to go into winter with, while the large amount of brood reared during the honey-harvest takes away quite a quantity of what we should receive as surplus. G. M. Doolittle.

Borodino, N. Y., Oct. 4.

Friend D., there is another objection to the Syrians and Holy-Lands. I feel quite certain that the same quantities of bees of these races will not, as a rule, gather as much honey as the same number of Italians.

A REVERSIBLE EXTRACTOR.

M'INTYRE'S PROPOSED MACHINE PUT TO ACTUAL TEST; AN INTERESTING EXPERIMENT.

I wish to say that I have been very much interested in what Mr. J. F. McIntyre has had to say about reversible extractors (see page 626). His article, published in the Nov. 1st Gleanings, 1889, was full of suggestions, and of great interest to us who use the extractor a great deal.

Last spring I made up my mind that I would make a reversible machine; and as I went about my work, for days I thought of little else. My line of thought finally took almost exactly the same course traced in Mr. McIntyre's article that was published on page 626. I made a wooden model, and experimented with that until it was time to begin extracting, when I sent to A. I. Root for a large can with a suitable gearing, and had a tinner make the baskets and inside frame. I made a two-frame machine, which takes a can 24 inches in diameter. The baskets are hung as illustrated in Mr. McIntyre's article, and are simply connected so that, when one is reversed, the other goes with it. A small catch holds the baskets when reversed, as in Fig. 2 (see Mr. McIntyre's article). When in the first position, as in Fig. 1, the heavy side of the basket rests against a projection from the cross-bar that holds the basket up. It is almost automatic, and is reversed by stopping and turning the other way.

This extractor can certainly be reversed without stopping, but I have not been able to get a frame or baskets made stout enough to stand the strain. Mine accidentally reversed a couple of times while in motion, and I thought it would tear every thing to pieces. I do not believe it is possible to make the frame and baskets stout enough to reverse while going at full speed, without making the machine too expensive; and even if the machine would stand the strain, I am afraid the combs of honey would not, especially the tender new ones in hot weather.

I extracted about 3500 lbs. with my two-frame reversible this year, and I am very much pleased with it. I can do the work at least three times as fast as I can with a non-reversible extractor, and just as easily.

One advantage of this machine is, that the baskets are hung and revolve quite close to the center of the can; in fact, in my two-frame machine the baskets, when reversed are a little nearer the center of the can than they are in the Novice. In a four-frame machine they would have to be further out from the center, in order to give more room for the baskets to revolve in reversing, so as not to interfere with one another.

The baskets seem to revolve with a momentum like a fly-wheel—at least, more so than any I ever used before. There is nothing to catch the wind, besides the baskets and the flat cross-bars.

AN IMPROVEMENT IN THE FOLDING TENT.

I have been compelled to use the bee-tent almost constantly this summer when handling the bees, though there were a few days during basswood bloom when I did not use it. Each season I renew the netting on my tents. With the best of care they will get torn, and once in a while the wind plays havoc with them. This year I used light muslin half way up from the bottom all around, and mosquito-bar only in the top part of the tent. I also sew a piece of light burlap, one foot wide, all around the bottom. If the ground is uneven it hangs down and prevents any bees from getting under. The muslin is an advantage in two ways: It is not so apt to catch on bushes, hives, etc., and get torn; and in the second place (and it is really the more important), the bees can not see what you are doing so well from the outside; and when you set a comb down on the ground the robbers can not see it at all. You who have used the tent much will appreciate this point. I have taken great comfort with mine while preparing my bees for winter during September, when the bees had nothing to do but to watch me.

WINTER PACKING

above the frames in chaff hives, and also in single-walled hives, to be successful, should not be above six inches deep, of chaff or leaves lightly pressed down, and the hive must be provided with holes in the upper part to give ventilation. If sufficient ventilation is not provided for, the packing will gather dampness. If too much packing is used, or it is pressed in too solid, it will get wet. It is also essential that the hive-roof be perfectly water-tight. Some porous material, such as burlap, should be put next to the frames. If these conditions are complied with, the packing, bees, and combs will stay perfectly dry, and there will be no need ever to open out the hive to the sun, or to dry the packing, as I have seen recommended.

The above is the result of several seasons' experience, not with one only, but with dozens of hives. Our bees that were packed in chaff

hives came through last winter in better shape, and did better this summer, than those that were wintered in the cellar. J. F. MOORE.

Rockaway, O., Oct. 1.

We are very glad, friend M., to get your testimony. We do not usually like to publish and illustrate any thing based entirely on theory; but McIntyre's reversible extractor is so unique in its plan that we were constrained to present it to our readers, first, that we might get some of our mechanical geniuses to test it; and, second, that we might ascertain whether the thing has ever been actually tried, and here you have tried it. In my recent visit among bee-keepers I found there was a very strong demand among the extractor men for an automatic reversing machine; and while the one you outline (McIntyre's) may be no better than the Stanley, in actual practice, theoretically it seems as if it were considerable of an improvement by dispensing with the chains and the flopping of the baskets against each other, which I am assured they will do with the best of management, at times. Extracting-tents, with cloth part way up, and netting the rest of the way, have long been in use. When our tents were all made of wire cloth instead of netting, we used to use cotton cloth part way up, on account of economy, it being so much cheaper than the wire cloth.

REPORT FROM GERMANY.

SOME VALUABLE HINTS FROM OUR GOOD FRIEND GRAVENHORST.

The report in GLEANINGS, Aug. 15, in regard to the crop of honey in America, induced me to send you a report. We had also a very mild winter, and our bees came through it without any loss, therefore in good condition. As the crop of honey the year before was a very good one, we need not feed our bees in the fall nor in the spring; they had more honey than they wanted. The spring was beautiful in the month of April, and our colonies prospered so that we could expect the swarming season in May. But this month was not as favorable as April, as we had only a few very good days when the bees could fly and gather honey and pollen. Nevertheless, my first swarm issued on the 21st of May. Most of the natural swarms issued on the first days, say from June 1 to 12, and at the same time I made my artificial swarms from every colony that I intended to increase. If one of my stocks casts off a natural swarm at the right time, I am glad of it; and if it does not swarm at the time I want it, then I swarm it artificially. Thus I make the increasing time a short one.

I have two kinds of colonies at the beginning of the season—those I intend to multiply, and such as are determined to gather only honey. The latter I make as strong as possible, to have them early in good working order. Swarming is prevented. If there is honey in the field, such a colony will gather it, and then I need not fear their swarming. If they have only a living from hand to mouth, I must be on the watch to prevent swarming. Before the bees build any queen-cells I take out the most of the brood-combs with capped brood, and insert combs without brood and honey, or only foundation.

To enable you to understand me better, I will say a word about my artificial swarms. I make only two kinds. First, I hunt out the queen of a colony just ready to swarm, and transfer her with some young bees, which I sweep from a few brood-combs of the same colony, into a new hive, furnished only with guide-combs in frames. The new colony is placed on the stand of the old ones, and this is removed to another place. Second, I select a strong colony which has many young bees, and sweep with a brush every bee from the combs and the walls of the hive into a new hive furnished with guide-combs. I take care to do this, not for the queen, as I know I shall get her in the new hive with the other bees. If the bees have gorged themselves full of honey by this operation, as bees always do when swarming, they will stay by their queen. If there is no honey in the hive, then I sprinkle the new swarm with a syrup made of sugar and water. I then place the new swarm on a new place somewhat distant from the old stand. I was the first bee-keeper who made such swarms in Germany. They are made in a few minutes, and many bee-keepers in Germany prefer them to all others. The combs, free from bees, I place in the old hive on the former stand. All the bees that were driven off by sweeping the combs will return to their old hive, and some to the new swarm. As in the old hive every minute will hatch many young bees, it will soon be all right, rear a young queen, and fill all combs that are not occupied by the brood with honey, if there is honey coming in. If such a hive, after having swept the bees from the combs, does not contain enough sealed brood-combs to fill it, then I take from a hive just having swarmed, or one that I have just artificially swarmed, as many brood-combs as are necessary to fill the hive, which will hold 16 frames, and give them, with all adhering bees, to this colony.

Now, only think of it! what a mass of bees will be in such a colony when the first young queen is hatched! There will soon issue a very strong swarm. When this swarm is hanging on a tree, or when I have it in the swarm-catcher, lying in the shade of a bush or tree, then I go to the hive it came from, and pull out *every* queen-cell. Toward evening I then return the swarm. Such a colony will not swarm afterward, although it will have probably more than one young queen. A few days after, there will be only one queen in the hive. As soon as this is the case, such a colony will work to the utmost capability, if there is honey in the blossoms. As long as I have built up such colonies, I have never had a lack of honey, so that, in the poorest season, I have never had to feed such colonies.

From the end of May till the 13th of September we had a hard time for our bees. We have had rain, and nothing but rain. Only a few hours in a week did we have fine sunny weather, and that was the only chance for our bees to do any thing. In the worst time we had, I did not have to feed a swarm. The most of our German bee-keepers were not so lucky as I, as they had more rain, hailstorms, and cold days, or their bees had no pasturage if the weather was favorable. My bees did very well in the month of April; some excellent days in June, July, and August, and so I secured a good honey crop from those colonies I have above described. I worked for extracted honey, as we have in Germany no market for comb honey. Rape, fruit-trees, poplars, gooseberries, acacia, linden, and buckwheat were the honey sources.

At the beginning of August I moved my bees to the heather, some miles distant from here, and there we had only four or five days, from the 15th till the 19th of August, very fine weath-

er. My strongest colonies I call double stocks. They have an average of 20 lbs. of surplus honey, and my other colonies have at least their winter stores. The only fault with the heather honey is, it can not be extracted, as it is too slimy, and adheres to the combs in such a way that the combs in the extractor will sooner break than the honey will fly out.

Some of the German bee-keepers have also had a honey crop, as I have; others only in the spring, from rape, etc.; others only in June and July. Upon the whole, the average yield per colony in Germany is in no way better or as good as in America. C. J. H. Gravenhorst.

Wilsnack, Sept. 13, 1890.

Friend G., we are greatly obliged to you for giving us this glimpse of bee culture in your own country. You do not manage things just as we do; but very likely you succeed best on your plan and with your surroundings, and no doubt you would get ahead of us if we were there with you; but if you were here, we are inclined to think you might somewhat modify your plan of working.

COMB-SPACING.

MORE GOOD TESTIMONY FOR 1⅜ INCH.

In transferring I invariably find the foundation of combs laid 1½ inches apart. Combs are built on this foundation to the thickness of ⅞ inch when the first batch of brood is capped. This brings the combs the proper distance apart for brood-rearing, while this part of the comb is used for that purpose; but as the foundation is laid out further down, the queen follows after the workers, laying while the comb is building, it seeming to be handiest to lay in an unfinished cell; but as the workers build about as fast as she can lay eggs—she preferring to lay in such cells—she does not return to the first cell as they hatch empty, to again deposit brood therein. Now, the bees, wishing to lay up a supply of stores to maintain the rising generation, occupy those recently vacated cells at the top of the comb, which, in order to economize space and perhaps heat also, they draw out until the intervening space is in the neighborhood of ⅜ inch. As the tops of the combs are now drawn too closely together for convenience in breeding, and the cells too deep for the queen to use them as easily as more shallow cells (I have seen eggs not more than two-thirds the distance to the bottom of those deep cells), they are thereafter used exclusively for stores. Then this would be natural spacing, ⅜ inch for stores and ½ inch for brood.

Some writers hint something about following the dictates of nature in this matter; but I object to such a thing; for, should we follow the dictations of Dame Nature, where would the frame hive be in a few short years? Why, we might yet be relishing a chunk of black, pollen-mixed honey out of a lion's carcass if man in his diversion from the laws of nature, in order to bring the world into subjection, had not given us the frame hive. I believe in getting just as far from nature in this matter as possible, which, in my experience, I find to be a ⅜-inch space between ⅞ combs. This is a compromise between nature and convenience, giving room for breeding, with ample room for winter stores. I for one don't like to handle combs with a great "bay window" at the tops where they are drawn out to receive stores; and, so far as I have seen, this is the case where combs are spaced more than ⅜ inch. I experimented with three colonies this season, with spacing less than ⅜, being somewhere near ¼ inch, with the following result:

Where any sink in the comb permitted of ⅜-inch space, I found capped brood; at ¼ inch, honey partly capped; less than ¼ inch, nothing much but pollen and uncapped, but there was very little brood in the brood-nest; but, oh my! July 1 I took off from one hive what should have been 50 lbs. of surplus, when I found that one-third of the combs at the bottom were the nicest kind of thin brood-comb built just as I describe above. One inch may be the thickness of capped brood, but I am confident that ⅜ inch is an abundance of space. It would be a good thing if this matter were *perfectly understood*, in order that persons starting to make hives would know just how wide to make them.

OLD COMBS AND QUEEN-CELLS.

Did any of you or your readers ever try putting an old black comb in a hive to get eggs for queen-rearing? If not, I would advise you not to, unless it is for an experiment. Such cells will almost always be as black as the comb, with texture so fragile as to become flattened by heat that will have no effect on the common yellow cells. I have seen them "wilt" down flat before the bees had time to cap them. I have also seen them after they were capped become flattened on all sides, making them wedge-shaped. Such cells must necessarily produce deformed queens, as described by friend Doolittle in Gleanings of July 15. I lately took an old black comb, full of honey, from a hive where the frames had been spaced too close to admit of capping, and put it in a nucleus where it was capped over with material just as black as the comb. The bees seem to think it useless to use material for cappings or queen-cells in these cases better than the foundation they have to work on.

Carbondale, Kan., Aug. 3. J. H. Markley.

Thanks for your testimony. If you will turn back to page 491 you will find that your conclusions agree almost exactly with those expressed by the writer. A space of ⅜ between capped brood and ½ between uncapped brood would make just exactly 1⅜ spacing from center to center. See also pages 564, 639, and 673. Verily, the evidence for 1⅜-inch spacing is accumulating. E. R.

WHAT SPOILS THE GRAPES?

DR. MILLER SAYS IT IS NOT THE BEES.

Previous to the summer of 1889 the bees each year worked on the grapes, and whole clusters were left nothing but skins and seeds. In every instance the first beginning on each grape was a slotted hole, perhaps an eighth of an inch long, in the form of a dumb-bell; that is, a round puncture at each end and a straight cut connecting the two. Last year and this year none of these slotted holes were seen, and the bees did no damage to the grapes. This year the bees were gathering nothing to speak of when the grapes were ripe; and if a basket of grapes were left standing, the bees would work their way all through it to lick up the juice where a grape happened to be broken; but after a basket had stood all day you would not say that they had been damaged by the bees. It seems, therefore, that the bees did not make the slotted holes; and without this first puncture the grapes remain unhurt. Now, what is it that makes the first attack? As it was lacking this year and last, is it not possible that we

could do something to make it lacking every year, if we knew the cause? Do others find the damage commencing with the slotted hole?

HOW MUCH WAX PER COLONY?

On page 701, friend Root, in speaking of Boardman's wax-extractor, you say: "It can not be that they cost very much, if it will pay a man to have one, who produces only 50 lbs. of wax a year." That sounds as if you thought 50 lbs. per year a small amount. To me it seems a large amount. Extracting, of course, produces more wax; but with comb honey I don't think I have ever averaged as much as two ounces per colony, and your remark raises the question whether there may not have been something wrong in my management. I know that, previous to this year, I have not saved wax as I should; but this year I have had one of Green's solar extractors, and I think nothing has gone to waste. The more I think of it, the more I think I shall lessen rather than increase two ounces per colony. If the good time comes when no brace-combs are built above top-bars, then I hardly see where I shall get any wax, except by melting up old combs or an occasional spoiled section. Will that give one ounce per colony? But I should say that it pays to buy a wax-extractor if you have only 25 lbs. of wax per year. I'm not sure but I should want one for only 10 lbs.

ISN'T THIS A FREE COUNTRY?

Friend A. I., I wish you'd look after Ernest a little. On page 702, under the head of "A Few Stray Bits," he talks just as if Elwood, Hetherington, and others had a right to certain territory, and that no one else had a right to go there, and apologizes at the last for even hinting that any one might think of doing such a thing. Now, I'm sure that Hetherington, with his 3000 colonies, has a better territory than I; and if I want to settle right down beside him, I'd like to know what's to hinder. I'm sure I could learn something from him, and it would be convenient to be so near that I could run in any evening and ask his advice. Please don't let Ernest talk any more about any one's "territory." Why, you see if the notion obtains that there is such a thing as a moral right to a given territory, some fool will get up and ask that laws be passed to make the moral right legal.

OBNOXIOUS SECTIONS.

On page 707 you ask, "Is it not true that some sections that have perhaps been tried one or two seasons became obnoxious to the bees?" I have had a few such, but it was generally where the foundation had been drawn out very little or not at all; and, being left on the hive the latter part of the season, the bees had glazed the entire surface with propolis. It is not because such sections have been used, but because they have *not* been used, that the bees reject them; and they are not fit to be used, even if the bees found no fault with them. We all know that bees prefer an old black comb to a bright new one; but one that has remained unused in the hive through late summer, when bees are in the varnish business, is quite another thing.

WORKERS LAYING IN QUEEN-CELLS.

Referring to Frank W. Lighton's case on page 709, I may say that I have had a number of cases in which I looked to see whether a young queen had yet commenced to lay; and I decided she was lost, by finding an egg in a queen-cell and no other eggs in the hive. Sometimes, at least, laying workers are satisfied to stop for a time, after getting an egg in a queen-cell.

Marengo, Ill., Oct. 4. C. C. MILLER.

Fifty pounds of wax is worth, say, $15.00. If this amount of wax should be wasted, if the man did not have a wax-extractor, he had better buy one, to be sure. But I was thinking that 30 or 40 lbs. of it would be saved any way. But even in that case, the saving of 10 lbs. of wax would pay for the extractor, providing it does not cost more than $3.00. Come to think of it, I guess, doctor, you are right, that it will pay to have a wax-extractor where you produce 50 lbs. of wax in a year.—In regard to obnoxious sections, I do remember that these that the bees will not use are almost always well varnished, and perhaps some propolis, too, thrown in. I have also decided many times that a colony was queenless because I found a single egg in a rudimentary queen-cell. I judged this single egg to be the work of a fertile worker, and I think they often commence by laying one egg —perhaps no more—in the hive. After a few days, however, we are pretty sure to see more such eggs.

AUSTRALIA.

A BAD SEASON FOR BEES; EXCESSIVE RAINS.

It is with much regret that I write to tell you of another bad season. The drouth of 1888 and '89 has been followed by a year of excessive rain. In the last fourteen months we have had 108.76 inches; in fact, we have taken to counting our rainfall by feet lately. The average rainfall for the thirty previous years was 31.45. We have had so very few sunny days in the last three weeks that we have had but one day on which the bees could work the wattle (mimosa), which yields the earliest pollen in great profusion. It is all out in blossom now, but the bees have not been able to touch it yet.

The season opened splendidly, but we took only half a ton of honey in the early part of the year. The rest of the season was so wet that the bees could scarcely make a living, much less store any thing, and so we have had to feed them this winter to keep them alive. For miles around us, in fact, with few exceptions, all over the country, the bees in the bush and those in box hives have all died out. One neighbor had 72 colonies in box hives, and has not one now. Another, a few miles away, had 180. He had lost them before winter set in.

MOTHS AND ANTS.

They say the moths and ants have done it, and are much surprised that ours have escaped; but we know the poor bees were so poverty-stricken and disheartened they let their enemies take possession of their hives.

BROOD-FRAMES; METAL CORNERS NOT SATISFACTORY.

We have been very much interested in the controversy going on in GLEANINGS with regard to the wiring and sagging of frames. We wire ours exactly as you describe the process in the A B C, except that we use a shoe peg instead of a tack, and we have never known a properly wired all-wood frame, with tin upright, to sag. The metal corners do. The weight of the honey twists and bends the tins into all shapes, and we are more troubled with burr-combs on the metal-cornered frames than on any other. We have used the reversible frames only two seasons, and they were both poor ones; so it is

rather early to speak; but we have never had burr-combs built on them yet.

SPECIFIC GRAVITY OF AUSTRALIAN HONEY.

I think our honey must be heavier than yours, for I notice you always allow 12 lbs. to the gallon, while ours weighs from 15 to 16, and, in very dry seasons, as much as 17. A four-gallon kerosene-can weighs, net, from 62 to 66 lbs., never less than 62 lbs., and seldom more than 66. Our average is 64 lbs. of extracted honey to the can. We usually find that our narrow frames hold about 10 lbs., and our section boxes 17 or 18 oz. when well filled. When using broad frames for sections we draw the top and bottom bar together with a piece of ordinary No. 30 wire. This prevents sagging, and most effectually prevents the introduction of propolis. I must say, I prefer the wide frames to supers, as the sections look so much neater and cleaner when taken out.

THE IGNOTUM IN AUSTRALIA.

I must thank you very much for the Ignotum tomato seeds you were so very generous as to send me. I was able to distribute them far and wide. All are unanimous in declaring them to be the most prolific and delicate-tasting of tomatoes. At the beginning of the season we were much disappointed, as they rotted in the center before they had time to ripen; but they soon grew out of that, and the vines bore for months, right into the winter. Some six vines, planted on drained and trenched land, produced bushels of splendid fruit. I don't think one seed failed to germinate. The curator of our state nursery, to whom I sent some, said he had never seen finer seed. He was sure that every one he had planted had grown.

S. A. Bradley.

Denham Court Parsonage, N. S. W., Aug. 4.

Friend B., when you speak of 15 or 16 lbs. of honey per gallon, one is almost forced to believe that your pounds are smaller than ours, or else your gallons are larger. I judge it must be the latter, for the kerosene-cans you speak of hold the same number of pounds of honey with us; viz., 60 lbs., or two or three pounds over; but instead of calling them four-gallon, we call them *five-gallon* cans. Many thanks for your good report of the Ignotum tomato.

NECTAR FROM RED OAK.

PROF. COOK TELLS US ABOUT WORMS, BUMBLE-BEES, SNAKES, INJURIOUS INSECTS, ETC.

I send you by to-day's mail a little box of oak twigs on which the bees are working with great diligence. Their whole business seems to be with the little buds—those I have tied thread around. I watched one bud five minutes, and in that time seven bees visited it. The whole seven seemed to be equally well satisfied with the result of their visits. It may be an old thing to you, but I had never observed it before.

Farm Ridge, Ill., Sept. 27. E. B. Capen.

We referred the above to Prof. Cook, who replies:

The oak which Mr. Capen finds giving off nectar is probably red oak, *Quercus rubra*. I find in the enlarged buds—which are secreting the nectar, the larva of a gall. It takes the fruit-buds of the oak two years to form acorns. These buds would have fully developed next year, and acorns would have resulted, had they not been unfortunate. A small four-winged fly—smooth, and somewhat wasp-like in form, pierced the buds and laid an egg in each one. This so irritated the tissue that it grew very rapidly, and a gall, or enlarged growth, resulted. In these galls the larval gall-fly may now be seen. The fact that these galls secrete nectar is not new. I think we have had such reports from Minnesota or Nebraska, and from Arkansas. The cause and purpose of this nectar is not easy to divine. I should very much like more of these galls, and a sample of the honey from the nectar.

It is very interesting to know that each gall-insect produces just the same kind of gall. Why this is so, no one can tell. That all galls of the same insect should be the same size, color, and form, as much so as fruit of the same tree, passes understanding.

It is also interesting, that bees get nectar from so many and such diverse sources; from flower-glands, from extra floral plant-glands; from sap, from plant-lice, bark-lice, from fungi, and from galls. Surely the wind is not only tempered to the shorn lamb, but equal love and care is shown in the feeding of insects and other animals.

THE IMPERIAL MOTH.

Mr. Wm. S. Adams, Guys, Md., asks about an immense larva which feeds upon the apple. This is our largest silk caterpillar. It is *Eacles imperialis*. I did not know it worked on apple. It usually works on sycamore. It has great horn-like tubercles. Mr. Adams says the person who caught it said it stretched out to a foot in length. No doubt this was an unconscious stretch of the truth. The caterpillar might possibly stretch to six inches, but even that is too large for the average. Yet, to see one of these terrible-looking larvæ, with its bristling horns, might easily lead to exaggerated statements. Yet this threatening insect is as harmless as a kitten. All its swing and waving of horns is simply for effect. It is well worth while to rear the moth, for it is one of the finest and largest of our American insects. It is a lively, beautiful yellow, dotted with black. It always attracts unusual attention, and causes words of surprise and admiration as I show it to visitors. When I show the larva, people generally say, "Horrid!" They all pronounce against the child, but praise the parent.

BUMBLE-BEES — BOMBUS PRATACOLA.

Mrs. S. C. Brooks, Spring Creek, Pa., sends for name, through Gleanings, some very beautiful bumble-bees (*Bombus pratacola*). They are about the size of a drone-bee, and, like all bumble-bees, very hairy. These special ones are yellow, black, and orange; the head, a transverse band on thorax, and the tip of the abdomen, are black, and a central broad band across the abdomen, rich orange brown, while the remainder is a bright yellow, the common color of bumble-bees. No wonder, so much are they with the beautiful yellow flowers. We know we grow to resemble in spirit and temper, if not in looks, those very dear to us, especially if much with them. Why may not the bumble-bees, then, grow like the bloom they visit, and which is bread for them? Mrs. Brooks is quite correct. These do not go into the hives. It would be a sorry undertaking for them to attempt it.

THE BLOW-SNAKE.

Mr. S. C. Corwin, Sara Sota, Fla., very kindly sent me two snakes some time since for moccasins. They proved to be the common blow-snake, or blowing adder—not poisonous at all. We handled them and stroked their heads as freely as though they were young puppies. True, they flatten their heads and necks in an alarming manner, which so compresses their

trachea, or windpipe, that they fairly gasp; but they can only frighten. They are utterly powerless to do harm. But friend Corwin was no man to give up, and we have now received a genuine moccasin—upland (not water) moccasin—from him. Though not very long it is prodigious in size, as large as my arm, and as vicious as big. His great fangs would fairly fly out as he would strike at us. As this is our first moccasin, we prize him. I now have fine specimens of all our venomous snakes. I tell you, friend Root, I am going to give the readers of GLEANINGS, when I have time, a snake-story that will raise their hats. I have the data. Just think! we have had live massasaugas, rattlesnakes, copperheads, and moccasins. We have visited with them for hours, and I guess I have about all their secrets. It is a charming story—just wait.

WHEAT JOINT-WORM.

The insect that is destroying the wheat for J. L. Bell of others, of West Middletown, Pa., is the joint-worm, *Irosoma hardei*, Harr. A small black four-winged fly lays its eggs, often several, just above the joints of the straw. These absorb the juice, and cause the straw to harden and become deformed, sometimes a little enlarged. These so injure the stem that little or no grain is produced. Barley suffers, as well as wheat. In the fall, examination will reveal the larvæ in the straw. They pupate in the cells in the hard straw, and come out early the next summer. If Mr. Bell will put some of these straws in a bottle he will obtain some of the flies in the winter or spring, if kept in a warm room; later, if kept out in the cold. In thrashing, the joints often break off, as they are so hard, and come out with the grain. These hard pieces of straw, of course, contain the enemy. A good remedy, as these work in the lower joints, is to cut the grain high and burn the stubble; also, to collect the straws from the grain and burn them. Still better, we can usually rely on parasites to destroy these destroyers. There are little holes in the straws sent. These are openings where little parasites, which have destroyed the joint-worms, have come out. These holes, as also the experience all over the country, make it probable that the worst of the trouble is over. Very likely no signs of the enemy will appear next year; or, if so, the damage will be far less.

DISEASED GRAPEVINES.

Mr. C. Gere, East Springfield, Pa., sends me two pieces of grapevine which are very much deformed by a gall-like excrescence. It often kills the vines the first year, though some vines sprout below the disease and live. I do not know this disease. I do not find insects, and surmise that they have had nothing to do with it. It appears like the fungoid malady of the plum—black-knot—though this is green or gray. I presume it is fungoid in nature. If so, the remedy is, I presume, the same as for black-knot in plum—cut and burn the stems as soon as the disease appears. I have handed the specimens to Prof. L. R. Taft, our horticulturist; and if he gives me any additional light I will report. I should like five or six more of the stems. The knot is two or three inches long, and doubles the size of the stem, so it is very noticeable. One can readily believe that it would kill the vine.

COLORADO DATAMES.

Miss Ellen Stewart, Altona, Colorado, writes: "I send you a new and strange insect, the second of the kind I ever saw. Will you kindly describe it in GLEANINGS?"

This is another species of datames. I have described and illustrated one in my Bee-Keeper's Guide, 15th 1000, p. 432, Fig. 221. This one is brown, and smaller than the ones from California. The first one from California, the late Mr. Enos, of Napa, found killing his bees. This summer another was sent me from Southern California, and the same complaint — killing bees—was preferred. Has Miss Stewart noticed a like habit of this Colorado species? As will be seen by referring to the figure in my bee-book, these animals are most peculiar in their jaws, which can work laterally, while each jaw has vertical jaws which remind us much of the pincers on the first legs of a lobster.

This animal belongs to the spider sub-class—*Arachnoidea;* to the scorpion order, which includes the true, false, and whip scorpions, and our grandfather gray-beards.

The family is *Solpulgidæ*, which is represented in the United States by only a few species. The most common one is *Datames pallipes*, Say. This is said to be common in Colorado, under "buffalo chips," and also to live in houses, where it feeds on bed-bugs. If this one had any show of a black dorsal line, I should think this Say's species. This one is brown, just the color of a bed-bug. The legs are lighter, quite yellowish. The tips of the falces, or jaws, are black. It is about one inch long. I am glad of this specimen, as it give us two species of these remarkable animals in our collections. Who will send the next one?

SWALLOW-TAILED BUTTERFLIES.

The caterpillar sent by Luke Snow, of Lamar, Barton Co., Mo., and which feeds on prickly ash, is common all through the United States. It changes into a swallow-tailed butterfly, *Papilio chresphontes*, one of our largest species. It is black and yellow, the yellow in the form of a triangle. All of the papilio larvæ have forked scent-organs near the head, on the back. When disturbed they throw these out, which produces a rank odor. This must be offensive to both man and bird. The butterfly is one of the most showy of our American species, of which we have several. All are black and yellow, or black and blue. All have tail-like projections to the hind wings. A good time to catch the butterflies is in the early spring, on the lilacs. A better way is to feed the larvæ and rear the butterflies; then they will surely be bright and perfect.

GOLDENRODS.

The two species of goldenrod sent by Mr. C. Gere are *Solidago lanceolata* and *Solidago Canadensis*. These are common species through the Northern States. I am not surprised to hear from Mr. Gere to the effect that both are excellent honey-plants. This fall all goldenrods have seemed to yield honey. I have found the goldenrods merry with bees upon every visit made to the plants this autumn. I should say that goldenrods are among our very best autumn honey-plants.

Hon. D. C. Leach, Walton, Mich., on the pine plains, says the bees are getting much honey from goldenrod. He finds they work steadily on *Solidago bicolor* and *Solidago nemoralis*, but hardly at all on *S. Canadensis*. This is rather strange. Last week a gentleman wrote from Pennsylvania, and said they were working finely on *S. Canadensis*. The same is true here. They are still working on all our species here. The hives are well filled, and we shall get several hundred pounds of surplus. The honey is very fine. A. J. COOK.

Agricultural College, Mich., Sept. 25.

Friend Cook, it does me lots of good to hear you tell about handling these great horrid-looking worms and fearful-looking snakes as if they were kittens and puppies. In view of the

superstition in regard to curing diseases, and the weather, etc., I felt sure there was also much superstition in regard to animals. I have been told that ordinary striped snakes are harmless. Perhaps you have said so; but I find it almost impossible to prevent everybody around here from killing them as soon as they see them. I try to cultivave their acquaintance whenever I find them; and I confess that I begin to regard them, as you say, like kittens and puppies; and when they are doing great service in destroying bugs and insects, it certainly does seem too bad that we should be so blind to our best interests.

SELLING ON COMMISSION.

SELLING HONEY FOR LESS THAN THE PRICE QUOTED TO PRODUCERS.

Friend Root:—I have been very much interested in the articles on shipping and selling honey, by the commission men, and I am sure that those who sell in that way can profit by studying said articles closely. Now, I know there is a large portion of the people who believe that all or nearly all commission men are up to tricks, and make much of their money by misrepresentation. While I do not belong to this class of people, I have one fault to find with all commission men that I have dealt with; that is, quoting a certain price on honey, and then, when they receive it, selling at a less price, although the market quotations showed no decline in prices at the time. To illustrate:

We write to a commission man in Kansas City or St. Louis for quotations, and in reply we receive a very polite letter, stating that they have special facilities for handling honey, and can handle ours to advantage, etc., and quoting a fair price *to-day*. We ship the honey, and receive a card or letter stating that it was received all right; and after waiting a month or two we write to see what has been done with our honey, and find it has been sold for a cent or two less per pound than formerly quoted. If not taking too much space, allow me to relate one or two such transactions.

I might here give some of the correspondence, to show that I am unbiased in my opinions, but that would only be taking time and space for only a small purpose. Last year we wrote to Kansas City for prices, and were quoted 16 cts. for nice comb, and were advised to ship immediately. We did so, and soon received a notice that the honey was received in good order, and was very nice. Soon we were advised of a decline, and our man thought best to hold it for better prices; and finally, after four or six weeks, our honey was sold for 14 cts., which netted us something over 11 cts. Had we known it, we could have got 15 cts. net for this same honey, without any great effort to dispose of it.

Last February we shipped 3 cases, 6 60-lb. cans of extracted honey, to Omaha, Neb. The party there had quoted it at 9 cts. per lb. After two months they had sold one 60-lb. can at 9 cts., and allowed us 7 cts. for the other 300 lbs., and charged us only ten per cent commission. That is, they did not report the 300 lbs. sold, but I presume they considered it sold to themselves at 7 cts., and charged us only ten per cent for making the sale.

Now, friends, I try to have charity for all men, and especially for those with whom I have dealings: neither am I much given to complaining and fault-finding; yet I should like to know why it is that honey *always* declines in price just *after* we ship, for we have invariably received a less price for our honey than that first quoted. This has been the case so often that we have about abandoned the practice of shipping on commission.

And now, brother bee-keepers, are not we somewhat to blame for crowding our honey into the great market centers, such as Kansas City, St. Louis, Chicago, Philadelphia, New York, etc., thus running the supply beyond the demand, and cutting down the prices in these places? Then when we go to a small town and try to sell honey at a fair price the merchant will show you a St. Louis price current, quoting Southern honey in barrels at 5½ to 6 cts., and sometimes even lower. I tell you, you have to talk like a good fellow if you make a sale at a fair price. Yet with all this, the writer sold, in small towns along the Mo. Pacific R. R., about a thousand pounds of extracted honey at 10 cts. per lb., in five-gallon cans. The can went free, and in one-gallon cans we charged 12½ cts. for the honey, can free.

We also could have sold more comb honey than we could supply, at 15 cts. net, and all of this was sold where I presume there was not 100 lbs. sold before I went there. We intend selling all or nearly all our honey this way in the future. Why can not you do the same? Keep more of the honey out of the great market centers, and thus keep it up to a living price.

Bluffton, Mo., Aug. 13. S. E. Miller.

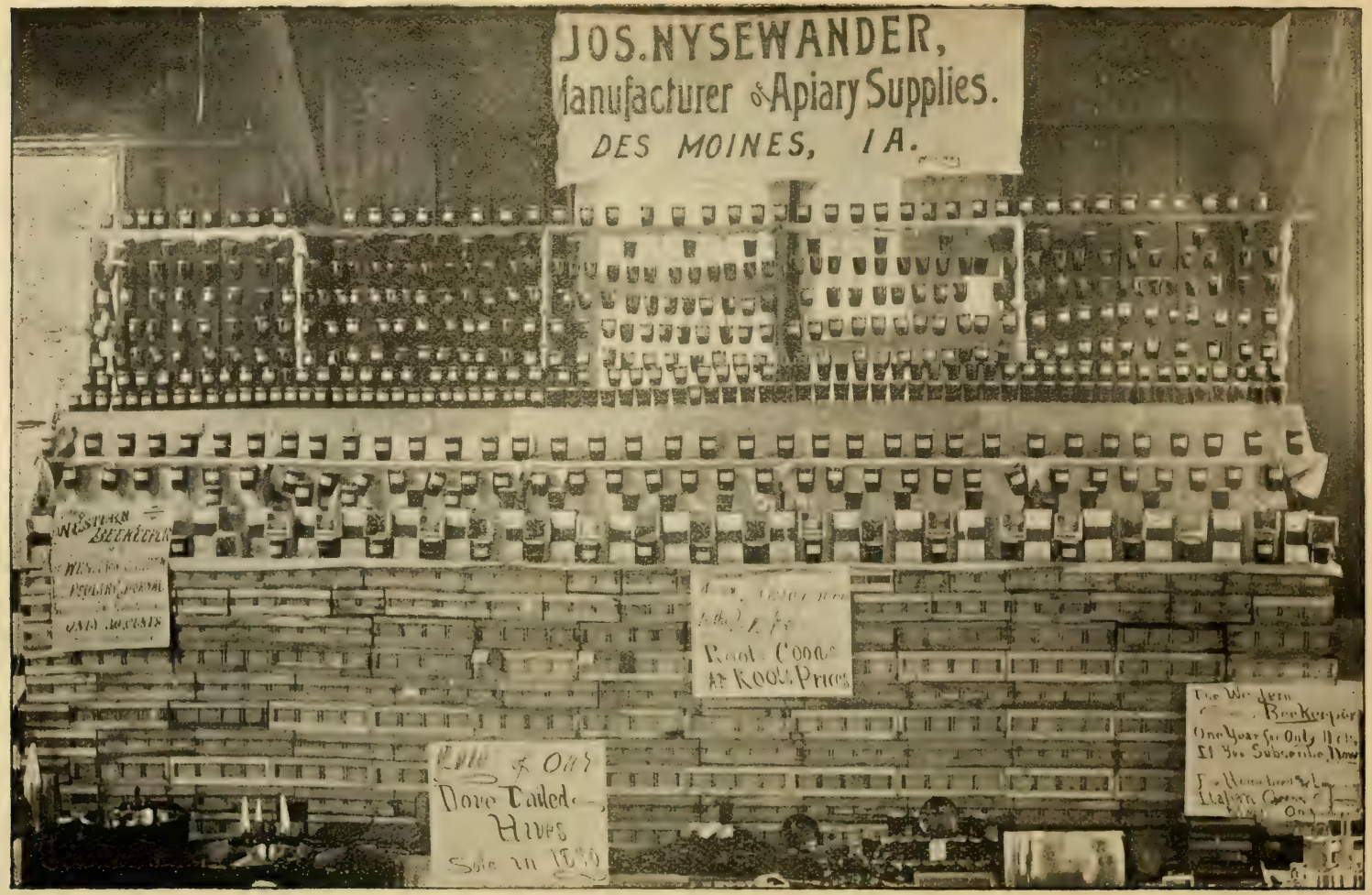
Friend M., I know there is a good deal of encouraging people to expect something they do not realize, in getting trade in all departments of business; but I am sure it is not a profitable way. You will notice that I strike upon the same subject in my present Home paper; but we should be careful about being too general in our charges. There are commission men in Cleveland who sold honey at a larger price than they encouraged us to expect, though this is the exception and not the rule. When you find a commission man who has once done this, hold fast to him, for you have discovered a treasure.

NYSEWANDER'S HONEY-EXHIBIT.

AN ATTRACTIVE DISPLAY.

I herewith give you a glimpse of our honey-exhibit, made at the Iowa State Fair. Notwithstanding the agricultural hall is large and commodious, the room always seems limited, and the exhibitor is sometimes required to make the room in height what it is lacking in length. This is true with the exhibit shown. It is about 14 feet in height and 25 feet in length, comprising extracted and comb honey, supplies, etc. The amount of honey represented is about 4000 lbs. We were required to place most of the extracted honey so far above the heads of the people that shelving had to be largely dispensed with to show up the glass jars to the best advantage. The larger portion of these were therefore strung on wire. While the row of jars did not appear quite as regular as if shelving had been used, there was nothing to obstruct the light at the back or the view in front, and this more than made up for the slightly irregular appearance. and the clear jars of linn honey showed up very beautifully.

By the way, the whole exhibit was purely of linn honey. The clover-fields that were early so promising did little more in this vicinity than to fill the hives when they suddenly with-



J. NYSEWANDER'S HONEY-EXHIBIT AT THE IOWA STATE FAIR.

ered under the influence of hot winds and dry weather.

There were about 2800 lbs. of comb honey. It was exceptionally white and fine, having been made in a short space of time, and taken off from the hives as soon as finished. You will notice that it is mostly in 24-lb. shipping-cases, the rest being 12-lb. cases. While these do not show the honey quite as well as the 48-lb. case, when it comes to shipping and marketing they are much safer, and more popular with the trade.

The supplies were arranged in convenient view, and consisted of every thing used by the bee-keeper, though the picture doesn't fully show this portion of the exhibit. However, you will notice, beginning at the left-hand side, a few smokers with numerous other small articles, which were placed on the top of a pyramid of 60-lb. cans of extracted honey, only the top corner of which is shown. Following along are the different sizes and styles of the Novice honey and wax extractors. Back of these may be seen smokers, foundation, drone-traps, and perforated zinc honey-boards. To the right of the central card is a pyramid of choice beeswax, made of small cakes. In this shape we find it to be a very marketable article. The cakes are of such a size as to retail at 5 cents, and we wholesale quite a good deal of it in this form to the stores. Next may be seen sprigs of a bunch of Japanese buckwheat in bloom, and the best 20 lbs. of extracted honey. The lid of the solar wax-extractor, which is thrown back, is noticeable, and the rest of the supplies in view are, a copy of the A B C book, foundation-mill, and sections, which are easily recognized. Jos. Nysewander.

Des Moines, Ia., Sept. 15, 1890.

Friend N., your idea of hanging honey-pails and tumblers on a wire is quite an item; and if you are the first one to inaugurate it, we owe you a vote of thanks. We congratulate you on the neat placards explaining and advertising the different items. Very likely the whole display will give many helpful hints to others in arranging like exhibits.

FOUL BROOD IN CANADA.

AN EYE-WITNESS RECOUNTS THE EFFECTIVE WORK DONE BY THE FOUL-BROOD INSPECTOR.

Any one who has spent a few hours with Mr. McEvoy in the discharge of his duties could hardly fail to be convinced of the necessity, in the interest of bee-keeping, for the surveillance of foul brood. I had long been satisfied in my own mind that protection ought to be given to this industry, of such a nature as to insure the man who embarks in it to make a livelihood, that his neighbor who has nothing at stake, comparatively, would not, through ignorance or otherwise, cultivate foul brood beside him, and thus jeopardize his existence as a bee-keeper. That impression, which has been deepening on my mind for years back, was immensely emphasized by the result of yesterday's ride; and, Mr. Editor, you may put your own comment underneath whatever way you please; but when I say that a large class of people—among them the non-reader, and the one-or-two-hives-for-honey-for-own-use folks—should be strongly discouraged, I think I say it advisedly, and that the following will bear me out.

After a drive of a couple of hours we arrived at a certain comfortable-looking village situated picturesquely amidst the hills, and there called upon the principal bee-keeper, the resident minister of the German Baptist church. We found him a man of intelligence, and particularly well up in matters pertaining to this industry; a student of the German, English, and American authors. He has for years used a shallow hive with a hanging frame, the same dimensions as the Heddon frame, and got the idea from accounts by German authors of a similar hive used in Germany. In fact, he says that, when Mr. Heddon gave his invention to the world, he wrote, informing him that he had already, the previous season, been using the same hive, only with a hanging frame.

When asked about foul brood he said that there had been some in his yard, caught from neighbors, but that it was now away; that he cured it by shaking the bees on starters, and replacing these by others at the end of three days, when he fed the bees, medicating the feed with salicylic acid and borax. No disease was found in his yard, and the place was the very perfection of order and neatness.

From there a visit was made to a blacksmith neighbor of his, scarcely 200 yards away, where only two hives were found, he having sent a number some miles off to a son's place. One of these two was very badly diseased, and the other somewhat less so. Another call in the village was made on a party owning one hive, and it was found to be on its very last legs with the disease.

As one of these two parties was reported to have sold many cases of foul brood they both were requested to have a bonfire at night. Mr. McEvoy then went across the street and asked the minister if he would go over and see that these men did what they were ordered to do. The minister very willingly promised to do so. He was very much alarmed when told that it was so close to him; and, with feelings of the deepest regret he said, "Oh dear! oh dear! after all my trouble in melting combs, and doing all I could to keep it out of my apiary—just see the risks I have to run with my neighbors who won't do any thing." The inspector replied, saying he would protect him, and make them clean out the disease.

Leaving the village we went to blacksmith No. 2, a couple of miles away, to whom blacksmith No. 1 had sold bees some time ago; and in the second hive looked at, the disease was found in a very malignant form and degree. This man has somewhere about 30 hives. The conversation which took place here was something like this:

"Say, mister, would you come up here?" (spoken from the upper level door behind the smithy).

"What for?"

"I want to see your bees." Up he comes.

"I'm the government inspector, appointed to look after bees and see that there is no foul brood among them."

"Guess you won't find any here."

Guesswork in this business is rather suspicious and suggestive.

"Oh, no! I don't expect to. Well, we'll go and see, any way. Do you take any journal?"

"No."

He was shown the foul brood, and warned and instructed about it. He was then advised to ask the assistance of our minister friend to help him get rid of the trouble.

Leaving here we passed down the road a mile to a farmhouse where was a small collection of hives of the ancient Mitchell and more modern Jones varieties. Some were inhabited, but more without tenants. No foul brood appeared here; but in one hive large pieces had been cut out of two of the back combs, and the next frame showed a few dead larvæ. The owner being away in the fields at a distance plowing,

time did not permit of interrogating him regarding the mutilated combs; but as a precautionary measure, word was left advising him to "take up" the hive this fall for its honey.

Further along a call was made where half a dozen Mitchell hives were sitting on a sloping lawn with a "list" to south that was calculated to call to mind the leaning tower of Pisa. The guid-wife took us for tramps, or agents, and, in absence of the guid-man in the fields, assumed the defensive.

"I don't let any one interfere with my bees. I run them myself," says she,

Mr. McEvoy indulged in a smile, passing the remark aside that this was the second time he had been refused liberty to see bees in the province. Our good lady friend became mollified when she was informed that no less a person had called upon her than a government official, and then came down and assisted in the somewhat difficult operation of dissecting one of the hives, apologizing all the time for her apparent discourtesy. No disease was found here.

The shades of evening were about to close over the beautiful landscape, and we headed off for home, having found three yards, out of six visited, badly infested with the vile disease.

Had time permitted following the other bees of blacksmith No. 1 to where they had been located, no doubt the trouble would have been found there also. We heard of a case where a party having foul brood extracted his honey and sold it in the grocery where another bought it and fed it to his bees, giving them the disease. One would naturally conclude, also, that foul-broody bees have been passing from one to another around here. I had the unfortunate experience myself, some years ago, of buying these, and know how exceedingly disappointing it may be, especially if no reparation is made, as in my case, and now I appreciate the Foul-Brood Act.

Our minister friend told us of having set up his son in the business, a year or so ago; and how, after he had just started, he got foul brood from his neighbor which cost him $400 before he had it eradicated.

Galt, Ont., Can., Sept. 4. R. W. McDonnell.

Well done, friend M. You certainly did a good thing when you started out on that visit, and a better thing when you reported it to Gleanings. Now, if we don't soon have like inspectors looking over the whole United States, and, in fact, the rest of the world, and doing just such effective service as you describe, it will certainly reflect on the bee-keepers of the world. Let us go and do likewise.

FOUL BROOD IN AN APIARY OF 125 COLONIES.

THE DISEASE COMPLETELY CURED BY THE PLAN GIVEN IN THE A B C, BESIDES 7 TONS OF HONEY AND AN INCREASE OF 65.

Friend Root:—You may remember that, in March last, I wrote you in regard to a remedy for foul brood, and you recommended the last issue of the A B C, which I purchased. I have been working an apiary of 125 stands, all of which had foul brood. I commenced transferring them about March 20, using the same hives and frames, but first boiling them. After putting about 12 stands in clean hives, on 4-inch strips of foundation, and confining them 24 hours without food, and finding they had done nothing, I gave them ½ pint each of honey taken from the diseased bees, but boiled, when they commenced to work. The strongest received no more, but the weaker ones were fed a few days. The remainder of them I treated less carefully, as I saw they would not work till the honey taken with them was digested. I transferred all I could each day, brushing all the bees from the combs into the new hives, and placing the combs into boxes for the purpose, furnished with sliding covers, and, when full, wheeled into the honey-house. At night, all that had been transferred during the day were moved about 50 yards, and given their liberty. As often as the combs and hives became too numerous, the frames and hives were boiled, and the combs made into wax.

After the bees were all transferred I used Muth's remedy, as given in your issue of A B C, 1878; viz., ¼ ounce each of salicylic acid and borax, dissolved in 1 pt. of pure soft water, and sprayed the combs. I used this remedy once on each colony, and have effected a complete cure.

About one year ago I transferred a few stands of bees which had foul brood, without the use of any medicine, and they are healthy to-day. If I treat any more bees having foul brood I shall use Muth's remedy, as I think it is a benefit to them. I have increased the above apiary to 190 stands, and taken 7 tons of extracted honey. Henry Otto.

San Jacinto, Cal., Sept. 30.

THE INTERNATIONAL BEE-KEEPERS' ASSOTION.

WHERE SHALL WE HOLD THE ONE AFTER THE MEETING AT KEOKUK?

The following is the copy of a letter which will explain itself. That I might go ahead understandingly I sent copies of the same to the ex-presidents and other officers of the American Bee Association. The letter is as follows:

At the bee-keepers' convention at Plum Bay, N. Y., we had a pleasant time. The entire shores of the most beautiful Lake George were covered with historic reminiscences. Mountains rise abruptly out of the water, and the scenery round about is indescribably beautiful. The water is clear—so clear, indeed, that objects can be seen sometimes forty feet beneath the surface. At the point (Plum Bay) where the bee-keepers camped, there is said to be a man-of-war sunk. It lies in a depth of forty feet of water, and yet I am assured that, on favorable days, its hulk can be quite distinctly seen.

At one end of the lake is Fort William Henry Hotel, on the spot of the old fort of that name, and, at the other end, Ticonderoga. Near by are two or three celebrated battlefields.

I have taken pains to mention some of the natural attractions of Lake George, and now, then, to my point:

Two first-class bee-keepers, Messrs. Andrews and Lockhart, own several cottages and a considerable portion of the shore bordering on the southeast. They are very anxious that this camp of bee-keepers should be an annual affair, as it is situated between the New England bee-keepers and the New York State bee-keepers, and is easy of access to some of the most extensive bee-men in the world.

Still further, while we were in camp this time, we were discussing as to whether this might not be a very desirable location for the International Bee-Association, to be held the year after the meeting at Keokuk, Iowa; namely, during the winter of 1891–'92. Along with the natural attractions, it is right in the

center (if we except California) of the most extensive bee-country in the world. Not many miles away are bee-keepers owning their 300 and 400 colonies. Then there are Messrs. Elwood, Hetherington, Hoffman, Tunicliff, Larabee, Martin, Manum, Crane, L. C. Root, Knickerbocker, Lockhart, and Andrews, and a good many others that are extensive bee-keepers. As it is one of the policies of the International Association to migrate, I merely suggest that it might be well to consider the advisability of holding our next International on the borderline of the Northeastern States; namely, at some point on Lake George. Mr. Lockhart offers the use of his cottages; and if anybody knows how to entertain bee-keepers, he does. His cottages are right on the shore of a most beautiful bay.

Now, whether we meet at Lake George or not, it seems to me that it is expedient for us to begin to consider the location of the International in 1891–'92, so that at the next meeting at Keokuk the members may be prepared to vote intelligently and understandingly. I told the bee-keepers assembled that I would write to some of the ex-presidents of the association and other officers, and learn what they thought of it; and if they all agree that it might be advisable to bring the matter up in print, that Mr. Newman, Mr. Hutchinson, and ourselves, would properly present the matter in our respective papers. I send a copy of this letter to Drs. Mason and Miller, Hutchinson, C. P. Dadant, R. L. Taylor, Prof. Cook, and perhaps one or two others.

After presenting the above to the readers of the *American Bee Journal*, the editor says:

We are very much in favor of holding the next meeting of the International Association at Plum Bay, N. Y., if it can be held during warm weather, and will do all we can to get it located there.

The following are replies received from the other representative bee-keepers:

As regards the place of holding the International meeting of bee-keepers in the winter of 1891–'92, I haven't much choice, except to have it as near *my* location as possible. Selfish, did you say? All right, then; let it be held where its best interests may be subserved. I love to attend the meetings; but, being poor, I can't afford to go very far, and I fear I shall not be able to go to Keokuk, but I *do* want to *so* badly! I am sure I don't know whether it is or is not advisable to meet at Lake George. You give but one good reason for so doing, and that is the proximity of so many large bee-keepers. The beautiful scenery, bay, historic spots, etc., cut no figure at a bee-convention, especially in the winter, when the ground may be covered with from a few inches to a few feet of snow, and the clear waters of the bay and lake with the same of ice. If held in October it would be different. Some town or city that is easy of access by rail seems to me to be the most desirable location. I had been thinking that perhaps Buffalo or Rochester would be a good place for the next meeting after Keokuk, for the reason that either location is readily reached from the East and West, and by the Canadians. Our meetings have not been selfish as regards places of meeting, and have done what was thought to be for the best interests of the society.

Auburndale, Ohio, Sept. 22. A. B. Mason.

I for one am quite willing that the next meeting of the I. A. B. A. should take place at some such point as you describe. It is evidently best for all that the I. A. B. A. should not meet twice in the same place for a number of years, and it is time that the N. E. bee-keepers had their turn; so you may count on my support, and I must say that I am very glad that you have thought best to discuss this question before the Keokuk meeting. This point having been raised, there will be less disappointment from parties who might want the meeting in some other direction. There is only one question that I wish to raise. If this meeting of 1891–'92 is located there, would it not be best to hold it early in the fall, so that our bee-men may have a chance to enjoy the scenery by a few rambles? C. P. Dadant.

Hamilton, Ill., Sept. 19.

I lectured to the bee-keepers in N. E. N. Y. several times last winter, and I know they are wide awake. I should think your plan a wise one. I believe a meeting held on Lake George in August would be excellent. Why not? Bee-keepers are not very busy in August.

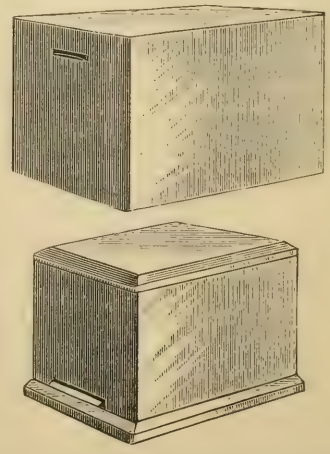
Agricultural College, Mich. A. J. Cook.

If we decide to hold the meeting at Lake George, it should, of course, be held early in the fall, say immediately following the general harvest of farmers and bee-keepers, and before the bees are put into winter quarters. Perhaps the first of October would be a good time. At any rate, we can talk that over at the convention; and if it should be decided to hold the meeting at Albany it might be advisable to meet later in the fall, or along in the winter. I should not think of holding it at Buffalo, because we have already had one meeting recently in that vicinity; namely, at Brantford; and as the policy of the International is migratory, it ought to go as far as Lake George, or the line of the New England States. E. R.

RAMBLE NO. 30.

IN STEUBEN COUNTY.

Mr. Sprague, Mr. Bowen, and the Rambler made a friendly call upon the great bee-man of Steuben Co., Mr. Wm. B. Stephens, of Stephens Mills. At the time of our call, Mr. S. had 260 colonies, located in three apiaries. We found



CHAFF HIVE USED BY MR. W. B. STEPHENS.

him and his son ready to talk bees, and we had quite a convention. His apiaries are run prin-

cipally for comb honey. In the apiaries at and near home, the honey resources are limited to clover and buckwheat, while his apiary over in Allegany Co. has the advantage of basswood. Mr. Stephens and Sprague both prefer black bees. Much buckwheat is sown in Steuben Co., and on that account the blacks are preferred. The L. hive is used to a large extent, but we saw quite a sprinkling of Heddon hives. We

were shown a very cheap chaff hive taking an L. frame. It had double walls, packed, and in winter a cushion is laid over the frames and a light case slipped over all. Mr. S. was so well pleased with the working of these hives that several were under construction. In the honey-house we saw a Novice extractor and an old-style Peabody, which is strong evidence that Mr. S. has been long in the business. A charming point about Mr. Stephens' location is, that his entire honey-crop is sold in the home market

Hornellsville, located only a few miles distant, is a smart and rapidly growing town of about 10,000 population. The principal grocers are supplied regularly; and, as long as he can supply the demand, California and other foreign honey does not find lodgment here, but is sent on to other cities. Extracted honey was slow to sell at first; but by putting a good quality upon the market he finds the sale increasing. His good home market will induce him to increase his apiaries, and extend the business. Having two energetic sons to help, he is well equipped for the extension.

Cellar wintering is practiced to a considerable extent, though outdoor wintering would be preferred, and is resorted to in out-apiaries.

We discussed the many qualities and peculiarities of extracted honey, and found our friends believing strongly in the idea that candied honey could be made nearly dry and powdery by draining; but the Rambler, having tried the draining process, is inclined to the belief that a current of air is necessary to drive out the moisture. All of this drained honey is usually found near stave joints or on the surface. If we had a shop in which a blower was running we should certainly turn a current of air through some candied honey, and watch the effect. If one temperature did not have any effect we would try another and get a range of temperature from warm to icy cold. Will some one try it and give us evaporated honey?

Our next call was upon Mr. Samuel Cotton, who believes in a diversified pursuit. He runs a farm, an apiary, a Brahma poultry-yard, a flock of peacocks, and a stable of Percheron horses. This carrying of eggs all in one basket does not agree with Mr. C. If the season blasts his hopes on one or two things, the others are successful, and he is happy.

While riding along we were shown the residence of an old-time bee-keeper, Mr. Hugenor, who had no end of peculiarities. While the bees were swarming he constantly repeated in a monotonous undertone the following "charm:"

Flutter, low flutter, nigh;
Busy bee, don't go high;
Whirl around the busy queen,
Alight down here upon the green.
Steady now, my hearties, steady;
Here I have a hive all ready.

The bees always alight low, so *they* say. Another belief quite common in the neighborhood, and which came from the same source, is, that bees choose their course on the first of May. This solves a problem that has been of much vexatious study for the Rambler. To diffuse themselves evenly over a given field must necessarily require preconcerted action, and that explains why some colonies outdistance their neighbors in honey-gathering. The 1st of May is a great day in beedom. We send you a picture of our happy and wise old friend. No doubt he would be pleased to give much information upon the subject; but, come to think of it, he, like old Grimes, the good old man, is—*dead!*

Having learned all we could about the bees and the people of Steuben Co., we bade our relatives and transient friends good-by, and ac-

HAPPY CONDITION OF THE RAMBLER.

cepted the invitation of Geo. Silsby to ride to Wallace's Station with him in his barouche. Though the roads were muddy and rough, we had a delightful ride. We send a sketch, showing the happy condition of the RAMBLER.

Friend R., you have actually found a bee-keeper who is well pleased with the outside protecting shell we described on page 698 of our last issue. I believe there is something in it yet, although the senior editor threw cold water over it. What we want is something that will enable bee-keepers to use the single-walled hives we already have in use, with a little more expense added, for outdoor wintering. I hope Mr. W. B. Stephens, if he sees this, will enlighten us more concerning it.—Uncle Hugenor looks as though he might be a firm believer in a charm for calling down swarms. No wonder his bees alighted low, for they could not do otherwise.—The happy condition of the Rambler, as shown in the above, calls vividly to mind some of my experiences. I thought it was bad

enough to ride in a spring wagon over some of the York State roads; but to sit in a lumber-wagon without springs, and that on top of a barrel, must have been—ah! well, exhilarating and exciting. Your picture leaves us in doubt as to whether you or the barrel arrived at destination "right side up with care." Ernest.

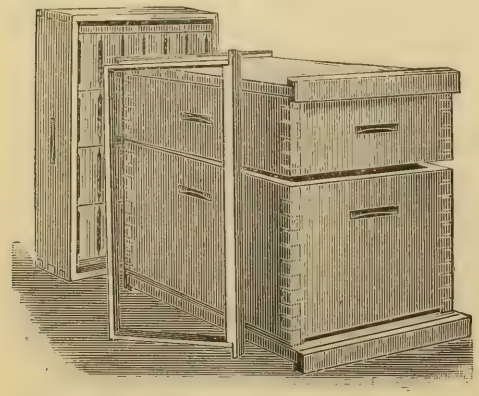
Recent Developments

CONDUCTED BY ERNEST R. ROOT.

THE DOVETAILED HIVE FOR 1890 AND '91.

I have already explained that my trip to the East was made largely for the purpose of ascertaining how the mammoth bee-keepers of York State dispense with burr-combs and honey-boards. Scarcely secondary to this was the matter of fixed distances. I visited some 25 or 30 representative apiarists, after whom the lesser lights follow. The former own an aggregate of perhaps 50,000 colonies, and manage them successfully without using honey-boards; and the wonder to them was, why they should be deemed necessary by the Western bee-keepers.

Now that I have come home, and the enthusiasm has somewhat subsided, so that I can take a somewhat cool view of the situation, I am thoroughly satisfied that we should do beginners a great harm by offering them slatted honey-boards* next year, when there is something so obviously better and cheaper. Your "committee" (as one of our subscribers has already begun to call it), comprising J. T. Calvert, business manager; J. S. Warner, our superintendent; A. I. Root, the "big boss," as he is familiarly called, Dr. C. C. Miller, and your humble servant,† after talking the matter over in all its bearings, have decided to offer the Dovetailed hive the coming year without the honey-board; and, in lieu of it, thick top-frames in the brood-nest. The bee-keepers of the East do not exactly use this style of frame, but they use a top-bar heavier and wider than those of the West ordinarily do. Their bars are, as a general thing, from ½ inch to ⅝ thick, to about an inch or a little over wide. To be on the safe side, our top-bars of the hanging frame in the new Dovetailed hive are to be 1 3/32 wide and ⅞ thick. The engraving below shows the frame as well as the hive.



THE NEW DOVETAILED HIVE.

* This does not apply to queen-excluders.

† We have also had some correspondence with the W. T. Falconer Co.

With the exception of the thick-top-bar frame and the absence of the honey-board, its general appearance is the same as before. But we have changed the hive a little; or, rather, we have made its inside width 12⅛ inches instead of being 11⅝ as before. You will remember, Dr. Miller spoke of the advantage of having an eight-frame hive wide enough to take in a follower on 1⅜ spacing. While we objected to it at the time, your humble servant, while on his Eastern trip, saw that the advantages of the movable follower were so decided that he at once recommended to the committee the widening of the hive; "for," said he, "if fixed distances ever get to be the rage (and it looks as if they would be in time), either a follower or an open-side hive will be indispensable. Even for hanging frames it will be a very great advantage." Mr. Calvert suggested that widening the hive would also necessitate widening the super. And this will permit us to use wooden separators with 1⅞ sections, or 7-to-the-foot sections without separators. Your committee then decided, with Dr. Miller's indorsement, to widen the hive. Some of you will argue that this will make confusion; that old hives will not be interchangeable with new ones. Oh! yes, they will. With beveled edges it would not do at all; but with square edges the new bodies will project only ¼ inch on each side over the old bodies, the length being the same. With this very slight change, you that already have the old hives would decide that the very great advantage to new purchasers is such as to warrant us in making the change.

FIXED FRAMES FOR THE DOVETAILED HIVE.

I think I may say, that, with very few exceptions, the very best bee-keepers of York State use fixed distances; and the favorite frame seems to be the closed-end and the Hoffman. One is used in York State about as much as the other, and both have peculiar advantages; and as it is a fact that these leading lights in apiculture can handle these frames as rapidly as the hanging frames, or, as Mr. Elwood calls them, the "swinging" frame, is it not wise to let those who wish to follow in the tracks of Elwood, Hetherington, Hoffman, and others, do so if they wish, and yet use the Dovetailed hive or the hive they already have in use? Mr. Calvert assures me that fixed frames, either the Hoffman or the closed ends, will cost only 5 cents per hive more than the same hive with hanging frames; and as our United States is made up of bee-keepers of all shades of opinion and preferences, we have decided to accommodate all if possible.

The Hoffman frame is already familiar to our readers; so is the closed-end; but as to how it should be used in the Dovetailed hive or any hive adapted for hanging frames, may not be altogether clear. Well, instead of having these frames *stand* on inside projections, we propose to have them *hang* in an ordinary hive rabbet like any suspended frame. The top-bar, instead of projecting, is sawn off even with the end-bar, and a good substantial blind-staple will be driven into the end of the top-bar just the right distance for a bee-space between the top of the cover and the frames. Mr. Calvert has made a diagram, which, being photo-engraved, is shown on the next page.

B, *B*, etc., shows the body; *C*, *C*, the super; *A*, *A*, the cover; *A*, A^1, the bottom-board; *f* shows the closed-end frames, and f^1 the thick-top hanging frames; *k* the comb-guide, and *l* the groove with the comb-guides left out for wiring. A staple is driven into the top-bar at *k*, and hangs in the rabbet, as seen in the diagram at the right, like any ordinary hanging

frame. This method of using closed-end frames in a tight-fitting box is the same as that used by Mr. Tunicliff, of Van Hornsville, and Mr. Smith, of Starkville.

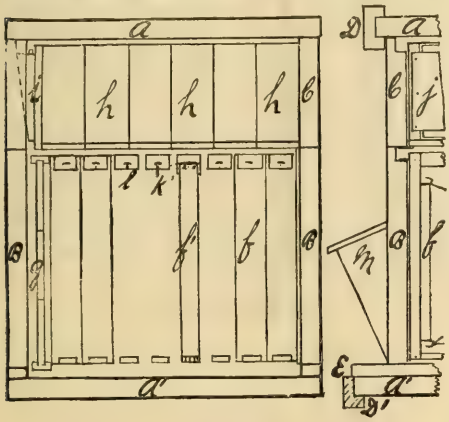
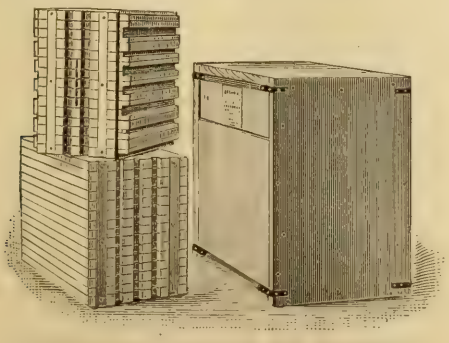


DIAGRAM OF THE DOVETAILED HIVE.

While the Quinby method of using the closed uprights (a hook under one corner so as to hold the frame while standing) may be preferred by some, there are so many L. hives of the hanging frame type, that it will be necessary, in order to use closed ends, to use Mr. Tunicliff's plan.

In order to reduce propolis accumulations, I noticed that Mr. Tunicliff uses Mr. Manum's thumb-screws. Mr. Smith, of Starkville, adopted a form of a wedge. Either method will compress the frames, and so reduce the amount of propolis that would ordinarily be secreted in the interstices between the closed ends. Thumb-screws, when they stick outside of the hive are objectionable on account of being in the way, and we have decided to adopt a wedge in connection with a follower, so that the closed ends will be compressed together, and yet leave the outside of the hive plain. In York State and Vermont I noticed that the large bee-keepers, as a rule, used a follower, in connection with a wedge or thumb-screw, to press the sections together, and at the same time facilitate the removal of sections. The foregoing diagram will illustrate the follower. *i* is the follower pressed against the section-holders *h*, *h*, *h*. To key up, a stick ¼x½x12 is let down perpendicularly, the thinnest way between the follower and the side of the hive. It is now revolved so that the follower, instead of being ¼ inch from the hive side is pressed ½ inch from it. The projecting end is now pushed down below the side of the hive, out of the way. To loosen up, reverse the operation as above; i. e., pull up one end of the stick to a perpendicular, turn it around flatwise and withdraw, and the sections are loose. Where fixed frames are used, the same keying-up arrangement will be used in the brood-chamber.



DOVETAILED PACKAGES FOR SHIPMENTS.

The engraving above shows very nicely a complete package of five Dovetailed hives ready for shipment. The inside furniture, cover, bottom-boards, etc., are all boxed inside, without using an ounce of crating, or in any way interferring with the usefulness of the material afterward. Besides, the sides and ends, as we have before explained, are held compactly by means of four cleats, that are just the same as the inside of the dovetails. The Dovetailed hive is as cheap as any, I think I may say, without boasting, ever before made, comprising from five to ten hives complete.

A BEE-SPACE AND WHAT IS RIGHT.

While on my trip I took pains to investigate the matter of a bee-space, and its relation to burr-combs. I feel pretty well satisfied that $\frac{5}{16}$ is too much. Mr. Elwood, who was never troubled with burr-combs, told me that he uses a bee-space ¼ inch, a little scant if any thing; and all those bee-keepers who had little or no trouble with them, I noticed, were using and recommending this scant quarter-inch bee-space. Those who do not have burr combs are the ones competent to give a correct answer to this. The Dadants, and Mr. Secor, and others of the West recommend this bee-space.. We decided, therefore, to make the Dovetailed hive in accordance therewith.

BEES AT WATERING-TROUGHS.

DR. MILLER SUGGESTS TWO REMEDIES FOR TWO OF THE TROUBLES IN BEE-KEEPING.

In your answer to John Burr, page 713, friend Root, you seem inclined to think that bees at a well or watering-trough do no great harm. My bees, at least, have been very troublesome. At the Wilson apiary there is a watering-trough at the well, and for the last two years the bees have taken possession of it to such an extent that it had to be abandoned as a place for watering horses, and another place used some rods distant. No doubt you will say, "Why, what harm did the bees do?" Well, I'm not sure that they ever did any harm; but the horses would't drink there, and that was harm enough. I have tried a number of times watering my own horse there. If very thirsty I could get him up to the trough, and perhaps he would plunge his mouth into the water in a kind of desperate manner, but, generally speaking, he would just stand and snort at the bees without offering to drink. I suspect, however, that bees floating on the water got on the horse's lips and stung or at least tickled them. This summer another trough was placed between this trough and the apiary, provided with comfortable floats and all that, and it secured some patronage, but the old trough held the most of its custom. If the old trough had been left dry for a few days, or had been entirely covered up, the case might have been different; but it was pumped full every night to cool the cans of milk. At the home apiary the bees are inclined to annoy every year by getting into any water left standing at the well, and even going into the pump itself, making it difficult to get a pail of water without drowning bees in it. A six-gallon crock of salt water standing a rod away, filled with sticks of rotten stovewood, has seemed enough attraction to keep them away. But it is important that any thing of this kind be started early in the season. Let

them once get into the habit of going to a certain place, and they don't like to change. This summer, before I noticed what was going on, they had commenced visiting the pump, alighting on a half-barrel that stood there with water for the stock. I moved the half-barrel away a little, and was careful to allow no water to stand in any thing else. After a day or two I set the half-barrel about a rod from the pump. I put a piece of board in the middle of it, and then covered the whole with a gunny-sack. The gunny-sack sank in the water and kept moist for some distance out of it, and this seemed to just suit the bees. I threw in a handful of salt, so it would not breed mosquitoes, and because I thought the bees liked it. Since then the bees have not troubled at all, although water has stood in pails most of the time at the pump. I recommend for trial a tub or half-barrel covered with some kind of coarse cloth.

GETTING BEES TO EMPTY COMBS SPEEDILY.

Until this year I should have answered W. R. Tate about as you have done on page 716. As you know, I have practiced letting the bees clean out sections in the fall by simply setting them outdoors and covering them up with entrance for only one bee at a time. This works satisfactorily so far as the sections are concerned, but you have no control as to which colonies get the honey. Placed over a colony, the bees, as you say, may empty it in a month; but if sealed, and there is no scarcity of stores in the hive, some of it may be left all winter. Now let me tell you how I have reduced the time to two or three days. I have just been to look at some sections that were given to the bees 24 hours ago, and I think all the unsealed honey is cleaned up, and they are working at the sealed. If I had uncapped it I think that part would have been emptied first. The sections to be emptied were in T supers, but brood combs could be emptied in the same way. I lifted the hive off the bottom-board; put upon the bottom-board two supers of sections, one on the other; on top of these an empty super, and on top of this I returned the hive. Every thing was bee-tight at the bottom to prevent the entrance of robbers, and you will see that the entrance of the hive was raised some 12 inches, but this troubled the bees very little. You will see that the empty super made a space of several inches between the bottom-bars and sections. This is essential, for I tried it without the empty super, and it didn't work. I also tried the empty space over the hive, but it didn't work. The two essentials are, putting the combs *under* the colony, and having a space between them and the bottom-bars.

Marengo, Ill., Oct. 6. C. C. Miller.

Well done, old friend. Your remedy for bees around the pump is something like the way physicians work when they apply a blister or a plaster—a counter-irritant. The trouble is, your tub or barrel will not receive the attention that the average pump or well does; and then the bees will go where there is the strongest inducement. I am glad of that suggestion of yours, that a handful of salt will prevent the water from breeding mosquitoes; but are you sure that they like water that has been standing a long while, just as well as that fresh from the bottom of the well? I know they sometimes seem to like stagnant water best; but I never felt quite satisfied in regard to it. Is it not because the stagnant water is easier to find than fresh water? Now, if keeping bees does annoy people around their pumps and wells, it is a matter that should be looked after. When people go to the expense of providing plenty of good water, with pumps and troughs to match, they ought to have the undisturbed benefit of it.—Since you mention putting the sections of broken comb at the entrance, *under* the colony of bees, instead of *over* them, it rather seems as if somebody had before suggested it. Is any one smart enough to tell us where it occurred in the back volumes of this or any other bee-journal? And, by the way, doesn't the above experiment indicate that the best place for a feeder is under the brood-nest?

DISCRIMINATION IN DISCOUNT.

BUYING BY PIECEMEAL, OR BUYING BY WHOLESALE.

You state in your catalogue, that any one sending an order for a large amount of goods can have them at a discount. It seems to me the poor man who is not able to buy in large amounts should have the benefit, as the rich one is able to pay for his goods; but it seems to be the rule to make the rich richer and the poor poorer. J. R. Comstock.

Morrilton, Ark., Sept. 1.

Friend C., this matter has come up a good many times, and quite a number of the friends have seemed to think that we were unfeeling and forgetful of the needs of those who have but little, and must buy in small quantities. One friend even went so far as to say he did not see how a man could be a Christian and refuse sell to a poor man one pound of sugar at the same price he charged a richer one for 100 lbs. Now, those who make such statements are certainly thoughtless, and have not looked into the matter carefully. The friends who have tried retailing honey know how it is. After any bee-keeper has sold 100 lbs. of honey, a pound or two at a time, if his time be worth any thing he will say at once that he would rather have 8 or 9 cts. per lb., and sell it all in one lump, making one transaction of it, than to have 10 or even 11 cts., weighing out a pound at a time. Now, this is true of every commodity to a greater or lesser extent; and when it comes to keeping books, and charging up a pound or two pounds at a time, and taking the chances of getting your pay, etc., plain common sense dictates that a lower price by the lump, especially if it be a cash-down transaction, is by far to be preferred. Why, dear friends, the whole world is groaning under the burdens imposed as a consequence, because so great a part of the world will persist in buying a little bit at a time. My wife was greatly astonished a few days ago when I told her that a good many customers for our wagon buy half a peck of potatoes at a time. Years ago we decided in our household that we *could not stand* the wear

and tear of purchasing in little dribs. Suppose you wait till the sugar is clear out; then you send to town for a couple of pounds. If there are several other little items, the sugar is often forgotten. So with butter; so with tea and coffee, soap, etc. Now, contrast this way of doing with friend Terry's plan. When I congratulated his wife on the beautiful bread we had to go with the strawberries, he replied that they always had beautiful bread because they purchased flour only once a year. The quality was guaranteed; and when Mrs. Terry learned just how to make nice bread of that particular brand, she could do it *every time.* By the way, friend Terry has been recently writing some grand articles on this subject for our agricultural papers. Ask your wife what she thinks about it.

Now comes the great obstacle. I presume, friend C., you will say that it is all very well for Mr. Terry and other people who have money in the bank; but how in the world are poor people going to buy supplies by the quantity? My friend, it costs you very much more to buy in little dribs, aside from the higher price you are obliged to pay. Why, I have known farmers to say they had to go to town right in haying or harvesting, to get some sugar, tea, or molasses, or something of that sort. A little reflection should have convinced them that their time spent on the errand was worth more than the goods they brought home—yes, a good deal more. I have known a man to go on some foolish errand like this when he lost *five dollars* that might have been saved had he stayed at home and got in his hay and attended to his other crops.

Now, very likely many can not commence at once buying supplies to last a *year;* but, my friends, if you strain every nerve you can work toward it, and you will save money by so doing until you have a little surplus with which to buy in quantities. It takes *time* and *brains* and *care* to buy closely and to be sure that you are getting only a first-class article. Now, when you buy by the quantity, the time, brains, and care are needed only once, to be sure you get a low price and a first-class article. Then *use* it with economy and care, and make it go as far as possible. Do not, I beg of you, let an *ounce* of your nice flour or best grade of sugar or nice butter go into the swill-pail. Please pardon the expression, but I have felt constrained to use it because I have seen people who were poor, and who bought from hand to mouth, as the saying is, let more rich food go into the abovesaid pail than do people who have large property, and money in the bank. A great many people excuse themselves for buying in little dribs, by saying they make their purchases evenings, when their time is not worth any thing. It is a mistake. Everybody's time should be worth something evenings. He can educate and inform himself in a thousand ways during his evenings to far better advantage than he can by loafing in the corner groceries.

Another thing comes in right here: The people who buy in little dribs almost always do the buying with a *pipe* in their mouths. They buy their tobacco and pipes in little dribs, just as they do their flour and sugar. Our shorthand writer says that tobacco is the second item of expense to our nation—far more than either sugar or flour. Now, I would stop buying piecemeal, even if it cost me such a sacrifice as going on short rations for a while. I would wear old clothes, and eat very cheap plain food until I could get money enough ahead to buy by the quantity. In regard to this matter of plain cheap food, I have a little story to tell you; but I think we will make it another article.

I have so far said nothing in regard to our catalogue prices. You notice we give the price on a single article, then on ten, and then on a hundred. Some time ago a young man came into our store and wanted some things to start a store himself. We agreed to let him have single articles at 10's rates. Well, I kept account of the time it cost to put these things up and ship them to him. It took a pretty smart clerk the best part of a day, and it amounted to only $10.00. Our profit could not have been more than 50 or 75 cts., so we really *lost money.* Now, if he had taken $10.00 worth of things in the regular way, half an hour would have been ample time for the whole transaction. And this is no exaggeration.

Many families waste valuable time and strength year after year in buying soap a bar at a time. Why, it is fearful. Dear reader, if you have been in the habit of doing that, stop it this minute. Ask your grocer how much lower he can sell you if you take it in lots of ten or a dozen, according to the way it is put up; or, better still, get his best figures on a whole box of just the right kind your wife likes best. Of course, she must keep a careful watch of the box of soap, and see that it is not wasted. If she is in the right sort of partnership with you in saving the pennies, she will do her part, I assure you. Have the right sort of soap-dish, and see that the children learn how to use this soap so as to make it go as far as possible, and yet give you all the benefit that soap *can* give. I am sure you can do it if you set right earnestly about it; and if you want to know just what Uncle Amos would recommend, it would be this: Just before you go to bed at night, you two, husband and wife, kneel down by the bedside and ask God's blessing on the project. Ask him to brighten and sharpen your intellects—give you wisdom and understanding in this matter of economy in the household; and you might also read that beautiful little text, "Whosoever hath, to him shall be given; and whosoever hath not, shall be taken even that which he seemeth to have."

ERNEST'S NOTES OF TRAVEL AMONG THE BEE-KEEPERS OF YORK STATE.

ON THE BICYCLE.

I left the reader at Mr. B. Van Wie's, and had just mounted the wheel. It was a beautiful morning, cool and bracing, and I felt in excellent trim for a day's wheeling. When we bicyclers start out for a day's run we at first experience a little weariness on the first two or three miles; and it seems as if it would be impossible to travel all day; but very soon the "second wind" comes on, as the wheelmen style it. I had just ridden far enough to wear off this first tired feeling, and to feel an exhilaration that comes after a five-mile ride. Yes, I felt as if I could go all day, and more too. The hills did not tire me, and the coasting down hill —oh, how lovely on that bright morning! I had gone about ten miles when I met a liveryman just coming down a big hill. I had ridden part way up it, and then dismounted. My face was, I suppose, somewhat flushed from the glow of the exercise; and the aforesaid man of horses, mistaking it for weariness and exhaustion, said, somewhat jeeringly, "Well, young man, *I* wouldn't travel across the country in that way for all the bicycles you can give me;" and with a crack of the whip he passed with a flourish, down the hill, as if he had said something very smart. I leisurely walked up the hill in the opposite direction; and on arriving at the top I again betook myself to the saddle for another delightful coast.

"No, old chap, I would not exchange *my* vehicle for your old rattlety-bang, for a good deal."

Noiselessly I sped down the hill. The panorama of scenery; a deep valley here, and a hill on the other side; the winding and twisting of the road, a wayside spring, a little brooklet,—all of these added to the charm of that bicycle ride. Just ahead of me I noticed a man hitching up a light rig with two handsome bay horses. They seemed to be full of spirits. The owner, seeing me coming at a distance, I judge decided to let me catch up, or nearly so, and then thought he would run away from me. For a mile or two he did. I did not propose to make a fool of myself chasing after him. I stuck to my usual gate, and before long I came within a short distance of his tired and panting horses. He evidently regarded it as a race, by the way he kept looking back to see if I were catching up. I pretended not to so regard it. I saw his horses were beginning to lag; and when a favorable opportunity presented, that is, a clear piece of road—I very modestly asked him if I might have the privilege of passing, as I was in a hurry. "Oh! certainly," said he, and he turned his horses to one side, for I saw that he was quite willing that I should *believe* he was not trying to run a race with me. The road was a turnpike, and for the most part it was good wheeling. In a few minutes more my friend with his two horses was out of sight.

All along my route I inquired very diligently as to whether the road ahead had any sandy spots. The terror of all wheelmen is sand, and I should prefer to go four times as far around on clay rather than to attempt a short run over the sand. Just before reaching Middleburgh I struck a little piece of sand. Following along some paths along the road I managed to get along very well. In a few minutes more I was in Middleburgh, where I arrived about 11 o'clock. On inquiry I learned that Mr. Wesley Dibble and Mr. N. D. West, bee-men, whom Mr. Van Wie recommended me to call upon, lived a short distance out and directly upon my route. I asked a hotel clerk if I might have a drink of water. He pointed to a water-tank outside of a bar. I hesitated somewhat; but being thirsty I took a small draught of water, without waiting to take any thing else.

I should remark right here, that, in making tours across the country, wheelmen, like horses, get thirsty; but we are obliged to be very careful and not drink too much water while in a sweat. I felt many times as if I should like to drink a whole quart; but I never took more than two or three mouthfuls; and after a while, on these limited rations of water every ten miles or so, the thirst would subside; and it is needless to say that I felt better for it. Temperance in all things—yes, even with water—is advisable and prudent. Well, I mounted the wheel, and in a few moments more a bee-keeper's home was pointed out to me—that of Mr. Wesley Dibble. I wheeled up alongside of the house, dismounted, and inquired if that was the place where Mr. D. lived. An affirmative answer came from the gentleman himself. The pump had gotten out of order; and, the water being low, he had withdrawn it; and, having repaired it, he was about to put it back in. I arrived in time to help him put it down, when he conducted me to the apiary in the rear of the house. It was a very pretty yard, and contained 70 or 80 eight-frame hives, of a pattern almost identical with the Dovetailed hive. Like all other progressive bee-keepers of this section he used fixed frames. If I remember correctly they were closed-end, and suspended, something like Mr. Tunicliff's that I explained on page 641. Two or three years ago he bought 50 Heddon hives, but he has discarded them all now. I might say in this connection, that I heard of another bee-keeper who had purchased some 45, and had likewise discarded them. Both averred that it was too much trouble to handle so many frames, and they finally went back to the regular Langstroth.

AUTOMATIC SWARMING A SUCCESS.

But what interested me particularly at Mr. Dibble's was his automatic swarming-arrangement. It was his own invention, having conceived the idea some two or three years ago. During the past season he has been using it successfully in his two out-apiaries. A colony that he thinks is about to swarm is fixed with perforated zinc tubes, and an empty twin hive is set beside it. When the swarm issues, the queen passes along the tin tube into the empty hive where the returning swarm meets her, settles down, and builds up a new home. The plan works so successfully with Mr. Dibble that he always swarms bees in this way, and is enabled to dispense with the services of a man in each yard, or a bounty of 25 or 50 cents for each swarm hived.

"Why," said I, "your arrangement is very similar to Mr. Alley's."

"Yes, it is similar," said he; "but it is my own invention, and I had been working along this line a year or two before Mr. Alley or Mr. F. D. Lacey made their inventions public."

The ever-ready Kodak was pulled out, and I took several views of the swarming-arrangement, and also of a handy tool-house for bee-keepers. Both of these I will illustrate and describe more minutely later, when the engravings are made.

Mr. Dibble is considerable of a genius. He has constructed a horse-power and hive-making machinery, whereby he makes all his appliances. That he is a good mechanic, is evidenced by his fine work. After taking dinner with my friend I buckled on the Kodak, oiled up, and betook myself to the road again. Mr. N. D. West, owning some 400 colonies, lived a couple of miles beyond. A short spin of a few min-

utes, and I arrived at the place. I tied my horse up beside the fence, dismounted, and rapped at the door. I was not quite so fortunate this time as I had been on former occasions. Mr. West himself was absent, but fortunately I met his son, who evidenly was a good bee-keeper. I was in a great hurry to see all I could, and I explained to the junior West that I had to make some miles yet, and would have to hurry at his place more than I really preferred; I might strike some bad roads, and needed plenty of time. We immediately went out into the apiary. Here, again, fixed distances are used. Some of the frames are the Hoffman, and others are the regular suspended, with nails driven in the right distance, to hold them at fixed distances. They have in all 400 colonies in three yards. The season had been a poor one, but they would average about 25 lbs. per colony. We soon repaired to the shop, where I noticed a similar horse-power to that used by Mr. Dibble. My stay here was probably not more than 15 or 20 minutes; and after apologizing for my short visit I again took to the wheel.

HOW I RAN AWAY FROM A BEE-KEEPER.

Being in company the night before with a lot of roughs in the hotel at ———, as mentioned in the previous number, I presume that I was a little bit nervous. I came along to a stretch of road where there was a sort of sidehill. It was down in a kind of valley, and quite remote from any farmhouse—possibly a mile either way. I saw a man going along the road, with a walking-stick. "Now," thought I, "may be he is all right, and doubtless won't do any thing out of the way, but I will just steal upon him rather quietly. As the bicycle is perfectly noiseless, when I get just about opposite to him I will spin by him before he knows it;" and this was almost immediately put into execution. After I had got a little distance beyond, I thought I heard him calling to me. Whether I did or not, I hustled up the hill as fast as I could. On arriving at the top I coasted down the hill at the rate of about a mile in four minutes; and as I was speeding down as if on wings, I congratulated myself on how *nicely* I had fooled the personage whom I had met in the valley back of me. I finally came to a farmhouse, and mentioned the little circumstance.

"Oh, no!" said the farmer; "we are all honest men down this way."

"That may be," said I; "but if you had been traveling over the country as I have been, alone, you would not be disposed to trust every man, especially when you are off alone a mile or two from any farmhouse."

At this point I can not forbear giving you the sequel. I do not know whether it is a joke on myself or on my friend, but it is rather on me. Just read this extract from a business letter:

EXTRACT FROM A BUSINESS LETTER.

Mr. N. D. West stopped at my house to-day. He told me that Ernest Root was at his house on the 13th, and that he passed through this place on his way to Durham. Well, I saw him a short distance off. If he remembers, just before he reached this place, on the right, below the road, a level piece of land, swamp, and meadow. I was down there looking to see what the honey prospects were from the golden-rod and boneset. I saw some one pass along the road on a bicycle, as if the "old boy" was after him, so I hurried up the bank and after him, just in time to see him going over the hill, nearly out of sight. If I had known it was Ernest, I should have overhauled him. I think I could have done it, as he had quite a hill to go up. I am very sorry that he could not stop and see me. I hope he will if he ever comes this way again. BEN FRANKLIN.

Franklinton, N. Y., Aug. 21.

Well, well! a bee-keeper and an honest man! and *I*, a doubter of a fellow-being! After arriving home I was told that there was a letter from a man who saw me going through the country, but was not able to overhaul me. I did not say any thing, but I began to suspect that I had made a fool of myself; and the writer of the above, I have no doubt, was the very individual who would have given me a nice bee-talk, and told me about his bees. Well, I hope he will forgive me; but who in the world would have thought that there was a bee-keeper who knew me, in that lone valley? and when he would stop me for a friendly chat, I just ran away! Well, I wended my way on my journey, entirely oblivious to the fact that I had run off and left one of my bee-keeping friends.

A RACE WITH A HORSE.

I finally came to a toll-gate. I stopped and inquired the toll. "Oh!" said the good-natured toll-keeper, looking at me and my wheel, "we hardly regard your rig as worth considering. You may pass on," said he, waving his hand. I did not know whether to feel pleased or not. At any rate, another rig, just behind me, came up, and the driver paid his toll. He had a race horse and a sulky; and from the former experience I had had, I knew that he wanted to see whether that fellow with a wheel could keep up with him. I put on all speed, but endeavored to *appear* as if I were not racing, but simply taking my ordinary gate, you know. I managed to monopolize the whole road, so that it was a difficult matter for him to pass, even if he would. There were farmhouses all along this road, and I rather enjoyed the fun. We ran together for perhaps two miles, and I was beginning to feel as if I had got tired of racing—at least, running at such a rate of speed—when I observed that the panting of the horse behind me was growing fainter and fainter, and finally, in a few minutes more, the driver and the horse were nowhere to be seen. The fellow *could* have gone by me, I know; and I am equally sure that, after a run of five miles, the wheel would have been a long distance ahead. I do not speak of this because I have any superior skill or endurance as a cyclist, but only to show what a mediocre rider like myself has done many a time. A good horse will outstrip a bicyclist for a short distance; but they are away behind on a long run.

Yes, sir; a Victor bicycle is worth regarding, the toll-keeper to the contrary; and while I am not *anxious* to pay toll, I like to have that most delightful of all steeds, the Safety bicycle, at least put on a par with the best of horses, both for speed and endurance for long runs; but to prove that parity, I hardly think I shall agree to race with every horse-jockey.

After stopping on the way for a refreshing drink I again started, and in an hour or two more I saw the spires of Durham. How my heart leaped at the sight! I had not seen my wife for a *couple of weeks*, and that was an awful long while for me; and I felt that my feelings duplicated hers. On arriving at Durham I was informed that Shady Glen—the place where she was stopping—was about three miles out. Over a winding and somewhat hilly road I traveled until the welcome sign, "Shady Glen," pointed to the place. In I came, with a flourish. It was then only three o'clock. I had gone 45 miles that day, visited the bee-keepers on the way, seen some beautiful country, and all before three o'clock. Mrs. Root was on Mount Pisgah, with a party of tourists, and would not be back till night; but a little niece recognized me among the first; and finally I met her papa and mamma. I was asked if I was tired. No, not at all. I was ready for a romp down the glen, and away we went.

[*To be continued.*]

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

James F. W. Johnston.

RAISING FEWER KINDS OF VEGETABLES; E. C. GREEN, OF THE OHIO EXPERIMENT STATION, DISCUSSES THE MATTER.

Mr. Root:—Your idea of making your catalogue of seeds contain only one or two kinds of the best, struck me so favorably that I have added my mite. After being here at the station in the garden for two years, and testing varieties of vegetables by the wholesale, as one might say, this idea struck me as a most sensible one, especially so when coming from a seedsman. To give an idea of the seeds we test, this year our list is something like this:

Potatoes, about 90 kinds; onions, 40; sweet corn, 40; tomatoes, 50; celery, 50; cabbage, late, 40; early, 20; and so on through the list of vegetables, to say nothing of small fruits. We have been trying to cut our list down to include the standard of the old kinds and the newer varieties.

In lettuce we have made three tests during the past year—two in the greenhouse and one in the field, which included about 90 so-called sorts each time. I say "so-called" sorts, for it is not at all strange to find one kind with several names; and it sometimes happens that a seedsman will send out the same kind of vegetable under two names. Taking, for example, lettuce, I found, out of the 90 so-called varieties, they could be divided into about twelve classes, each class containing from two to eight varieties. Thus, in one class would be put the Grand Rapids, Black-seeded Simpson, and White-seeded Simpson, and others of this class.

But after seeing all these kinds growing, I can say that there seems to be one or two in each class that contain the best points; and, taking this with the fact that about two-thirds of the classes are not worth raising, it cuts the list down to a very few kinds; and when we get it down to a few there are still some that are the best for particular markets and uses.

To cut down a list is quite easy work until we get to the last three or four, and then comes the trouble unless we know just what the market or use they are put to calls for. For example, does your market call for a bush lettuce, then give them the Black-seeded Simpson or Grand Rapids; if they want a head lettuce, then the Deacon is good; or one for table decoration, then the Boston Fine Curled. What is true of lettuce applies to nearly all vegetables; the different kinds and sorts are mostly made by the seedsmen in order to have a novelty to introduce. Still, there is something new brought nearly every year that is valuable; but to find them among so many that are worthless is a costly task; and, on the whole, it is nearly always more satisfactory to have one or two kinds that do well than so many failures.

Columbus, O., Oct. 6. E. C. Green.

Friend G., "a friend in need is a friend indeed;" and you have come to my aid most opportunely. Why, with the experience you have just been having you can do us an immense service. A brief article from you—say a single page in Gleanings—will probably save our readers alone thousands of dollars, especially if they profit by it. Now, to start the ball rolling I will briefly map out what I have been proposing for the next year. In the following list, where I mention only one vegetable it will be understood that we have decided we need only one kind. After I get through I want your amendments and criticisms at length. Very likely you will double or treble my list. But that is all right. I want you to do so if the best interests of the people demand it. Now, here goes:

Asparagus—Henderson's Palmetto.

Bush beans—Henderson's Bush Lima; Kidney Wax; White Kidney.

Pole Beans—King of the Garden lima.

I am not sure that the King of the Garden lima is very much larger than selected beans from the ordinary lima; and you will notice that I have dropped the Extra Early lima. I have done so, because a great many seasons they are little if any earlier than the King of the Garden.

Beets—Eclipse; Lane's Improved Sugar; Long Red Mangel.

Cabbage—(I tell you, friends, it is a hard matter here. I have decided not to recommend more than four kinds; but in selecting the four I felt a good deal troubled; but here goes for an attempt.) Jersey Wakefield; Excelsior Flat Dutch; Perfection Drumhead Savoy; Large Red Drumhead.

Carrots—Orange Danvers.

Cauliflower—Early Snowball.

Celery—White Plume; Golden Dwarf; New Rose.

Sweet corn—Corey's Extra Early; Late Mammoth.

Cucumber—Early Frame; White Spine.

Lettuce — Grand Rapids; Boston Market; Henderson's New York.

Muskmelons—Landreth's Extra Early; Emerald Gem; Banana.

Watermelons—Landreth's Extra Early, and—after all the kinds I have planted and tested, I am not really satisfied to give any single one the preference. Friend Green, please supply one besides the Extra Early.

Onion—Silver Skin; Globe Danvers. For a large foreign onion, started in the greenhouse, I would suggest White Victoria, although I am not sure that it is any better or much if any different from the Silver Skin; for a winter onion, Winter or Egyptian onion-sets.

Parsnip—I do not know which kind is best. I am not sure there is much difference.

Parsley—Double Curl.

Peas—Alaska; American Wonder; Stratagem.

Peppers—Bullnose; Cayenne.

Potatoes—Now, right here I can not really decide whether we want both Early Ohio and Early Puritan or not; and if we want only one, I am afraid to put either in place of the other. For late I would have Lee's Favorite; and for a

very late potato, Terry's preference, which he calls the Monroe Seedling.

Pumpkins—For the market-gardener, Early Sugar.

Rhubarb—I do not know which is best—Victoria or Linnæus.

Radishes—Vick's Early Scarlet Globe; Wood's Early Frame; Beckert's Chartier; Chinese Rose. This list is rather long; but as each is particularly suited for some special season, I do not know how we can avoid having so many.

Salsify—New Mammoth.

Spinach—Bloomsdale Curled.

Squashes—Giant Summer Crookneck, and Hubbard for a winter squash. I have become disgusted in trying the much-lauded new squashes, and finding, after all, that none were equal to the old genuine Hubbard. The Hubbard not only sells better than any thing else, but with heavily manured and early worked ground it yields about as many tons per acre.

Tomato—Ignotum. I should rather like to have the Golden Queen, and possibly some Peach tomatoes and Pear-shaped, just for the fun of it; but for actual profit I do not believe it pays. We have for years carried the Pear-shaped tomatoes on the wagon until they became so bruised they were worthless. Once in a while somebody wants them; but the demand is too small in our town to pay for carrying them around.

Turnips—Purple Top White Globe, and some sort of French or Swede turnip. For three or four years past we have not found one that suits us. When I was a boy my father used to raise them as big as a peck measure, and they were sweet and tender when cooked. We have not succeeded in getting any like them during the past ten years. I wish somebody would tell me whether the fault was in the seed or location. Father raised them on sandy, gravelly soil. We have tried them here in Medina in all kinds of ground.

Now, friends, after friend Green has given his opinion and advice I want you all to pitch in and help. I am going to have a seed-catalogue before the first of January, all on one page, even if it costs hundreds of dollars to get it down on one page. It may need to be amended more or less every year; but my present notion is, that it must be kept down to about the number of varieties I have outlined above.

TERRY'S METHOD OF GETTING AN EVEN STAND OF STRAWBERRIES, NEITHER TOO THICK NOR TOO THIN.

Friend Root:—We are thinning out our strawberries now, and I was just reading what you say on page 720. Probably friend Pierce and myself are both right for our different circumstances. He makes a business of growing small fruits, and says he kept a man in his berry-field all through August, and September, perhaps, to train the runners and let only enough grow to make a proper stand. He further says, a weed is a plant out of place, and asks, in the *Country Gentleman*, why I let them grow and occupy the ground, to be taken out and thrown away afterward.

I am a farmer. In August and September our time is very valuable at our regular work. If I had the berries carefully watched during that time, and only those plants that were needed were allowed to take root, I should have to hire extra help to do it. Now our hurry is over, and my man can do it at no cost, as there is nothing else that needs attention.

When the runners were well started we went through once and placed them around, and then let them grow unmolested. The stand is almost perfect. I wish I could send you a photograph. It is natural for strawberry-vines to grow and run and multiply freely, and I believe they are the most healthy and productive when allowed to do so. But to make the fruit large we must thin them out after they get about through. Again, I would rather do this all at once, now, than to go over and over the patch for months. With a garden-trowel, ground sharp, we find we can, with a single push, cut the plants off just at the bottom of the crowns, and take them out very rapidly, without making any hole or disturbing the others. As they have been running since the last of June they will hardly do any more of this, and the thinned-out plants can now grow and get a good ready for business next year.

We have cut our rows down to paths 16 inches wide, and beds 32, with plants as nearly 6 inches apart every way as possible. I do not think as many bushels to the acre of as fine large berries can be grown practically in any other way. There are other plans that will grow as large fruit but not, I think, as many bushels.

When destroying the small feeble plants, and the large ones where they were too thick, last year, we left them in the paths and some in the bed. It wasn't a finished nor a satisfactory job. This year we put them in baskets and remove them. The plants are held to each other by the runners, so it is not easy to get them out, except by cutting these off. If the side of the trowel is ground sharp we find it will cut them readily.

Hudson, O., Oct. 4, 1890. T. B. TERRY.

Friend T., we know by experience that there is wisdom in what you say. We have gone over our plants three and perhaps four times with some of them, where they were set in July, and it is a pretty big job. I feel quite certain that your plan would be the best economy of labor, and perhaps the economy of labor would make up for what would be gained in not having the ground at any time overcrowded. It is a question in regard to the help that may be available. As I have already said, it takes a person of skill and experience to do the work nicely. Boys, as a rule, will take a great amount of time, and not get just what you want even then, unless they are, say, toward 18 or 20. I heartily agree with you in regard to putting the refuse plants and weeds in a basket. With a little practice, our children will pull weeds and put them into a basket about as quickly as to throw them on the ground; and if they are in the habit of giving each weed a fling, there will be a saving of time by putting them into the basket. Then your work is clean and well done, and your path looks slicked up; whereas if the weeds are thrown in the paths, when a heavy rain follows a great many will grow. I have just had a most interesting and pleasant visit from two of our

leading strawberry-men — Matthew Crawford, of Cuyahoga Falls, and Mr. Little, of Canada. Mr. Little is the gentleman mentioned in the strawberry book as the one who got well in spite of the predictions of the doctors. Getting interested in strawberries is what cured him.

Friend Crawford and myself, and others who sell strawberry-plants, can make use of these little plants where they get in thickly, especially where the variety is a valuable one. Put them in the plant-beds 6 inches apart; and when they grow big and strong, use them to fill orders. Friend Crawford, this season, succeeded in getting splendid strong plants by using the sets before they had made even a single root. He did it, briefly, as follows: Cover your rich plant-beds with clean sand to the depth of an inch. Put the sets down in the sand, say two or three inches apart. Keep the sand constantly wet, as florists do for cuttings, and cover the bed with a cloth frame until the cuttings are rooted. You can put them down quite deep in the pure sand, and the new leaves will make their way up through it. The new roots will push out into the sand readily, and when they get down into the very rich plant-bed soil they will grow amazingly. I wish I could tell you how we three strawberry enthusiasts enjoyed the walk over our grounds. And there was another tie that bound us together. We could all heartily unite in outspoken thanks to Him who gave us not only the strawberry-plant, but all these other wonderful gifts.

PETER HENDERSON'S PLAN OF RAISING STRAWBERRIES.

Can you explain why Peter Henderson speaks confidently of his method of planting potted strawberry-plants in July and getting a full crop the year following, and then planting the ground to some late crop? With him this seems to be no experiment, but rather a common practice. Now, most growers differ with him in practice, and agree with Mr. Terry; viz., spring planting. Which is better? Again, would the Sharpless or Parker Earle do as well as the Jessie to fertilize the Haverland?

Kingston, Pa., Sept. 30, 1890. M. G.

Friend G., I suppose there is no question but that spring planting will give a larger crop than planting in July, even with potted plants; but with Peter Henderson's ground, with its great fertility, in consequence of heavy manuring, no doubt he could do wonders with strawberries. I do not believe, however, that he ever raised very *many* strawberries on that plan. I have visited his grounds at two different times, and all I could find was a small plot devoted to raising potted plants.—The Sharpless will not answer as a fertilizer as well as the Jessie, because it does not produce so large an amount of bloom, both early and late. The Parker Earle is now growing finely on our grounds, but we have never yet fruited it.

THE OREGON EVERBEARING STRAWBERRY.

As we have received several hundred letters from our advertisement in Gleanings, asking about the Everbearing strawberry, we will answer them all through Gleanings. We have no more plants to sell, but will send a few to those who wish to test them, and will report how they succeed. With us the berry has done wonderfully. We purchased 150 plants of Mr. Winquist last year. A few were set on poor clay soil, and the remainder on very rich soil. Those set on clay soil have borne profusely all summer, and are at this date laden with berries; but those set on rich soil did not bear so profusely, but have made many sets, while those on clay soil have made no sets. We believe the berry will be a success if planted on clay for berries and on rich soil for sets.

J. B. Alexander & Co.

Hartford City, Ind., Sept. 22, 1890.

Well, friends, Gleanings proved to be a very good medium to advertise in, in this case, it seems to me. We are sorry to say, however, that our Everbearing strawberries from Oregon do not seem to be very thrifty, and at the same time are in very rich ground. While in our plant-beds in the spring, they were sending out runners about as rapidly as any of our plants; but in order to make room for our new building, they had to be removed; and although they were carefully transferred with transplanting-tubes, they have acted sort o' contrary ever since. *Some* of them are, however, putting out runners fairly, but no fruit.

Our Question-Box,

With Replies from our best Authorities on Bees.

Question 170. *On the average, which will do a better season's work—a colony of pure Italians or one of hybrids?*

We prefer the Italians.
Illinois. N. W. C. Mrs. L. Harrison.

My experience favors the hybrids.
California. S. R. Wilkin.

I don't know. I prefer the Italians.
Illinois. N. C. J. A. Green.

After testing the matter *thoroughly* we prefer pure Italians.
Illinois. N. W. Dadant & Son.

I have not had a colony of pure Italians for a number of years.
Ohio. N. W. E. E. Hasty.

I don't notice any difference. I have colonies of hybrids that are far ahead of some of my Italians, and *vice versa*.
Ohio. N. W. A. B. Mason.

Italians, for white honey. In some localities where much fall honey is secured, hybrids might do as well or better.
Vermont. N. W. A. E. Manum.

Hybrids, in this locality. In some places pure Italians are better. Many hybrids are called pure by their owners.
New York. C. P. H. Elwood.

I don't know; but I believe there is more in the way bees are managed than there is in the breed or race.
Wisconsin. S. W. E. France.

This depends. I think no invariable rule can be given. It depends much on the individual character of the colonies.
Michigan. C. A. J. COOK.

There was a time when I thought that hybrids were the best honey-gatherers; but I have changed my mind. I believe that the Italians are the most profitable bees.
Ohio. S. W. C. F. MUTH.

Doctors disagree. I got severely bounced once for giving my opinion upon this delicate question; and now, if you please, I'd rather not say.
Ohio. N. W. H. R. BOARDMAN.

There is little difference in a good season; but in a medium to poor season the Italians are very much preferable. Then we must have the Italians to get a hybrid Italian, you know.
New York. C. G. M. DOOLITTLE.

I am sorry to say I know nothing about it from actual observation. Reasoning from analogy, I should think it possible we might expect more vigor in a *first* cross than in a pure race.
Illinois. N. C. C. MILLER.

The querist speaks just as though hybrids were hybrids, and all just alike. I will say that the right kind of hybrids from the right races of bees, and the right strain of these right races, will do a better business than any pure Italians. That is my experience.
Michigan. S. W. JAMES HEDDON.

It might be a little hard to determine. For extracted honey we prefer the Italians. They are nearly moth-proof, and defend their hives well from robbers. The first cross from pure Italians and blacks generally produces bees that are hard to beat as honey-gatherers; but it is difficult to keep just that grade, hence we prefer Italians.
Wisconsin. S. W. S. I. FREEBORN.

Our preference is for the hybrids. Our best out-apiary had very good Italians. The young queens met black drones, which were plentiful in the neighborhood. The cross caused the bees to become very industrious with their stings, and we have been compelled, not by threatenings of law proceedings, but out of courtesy for the feelings of others, to move the apiary to a less exposed position, some 20 rods from any habitable building. These bees were tearers for gathering honey. They beat the record of all my other apiaries.
New York. E. RAMBLER.

Well, friends, I am astonished, and I don't know but I might say I am a little bit disgusted, to see that so many of you intimate that there is not "very much difference." Friend Doolittle hits the point I have in mind. If it were not for the *Italians*, you would not have even any hybrids. And now, friends, if I may disagree with so many good men, I can hardly believe there is one of you who would keep on bee-keeping with any thing like his present energy and enthusiasm if your future operations were to be confined strictly to black bees and nothing else. Friend France was pretty positive when I was there, and I am glad to know that he has changed enough to say just now, "I don't know." If I am not mistaken, he once told me that he would just as soon, or a little rather, have the "simon-pure blacks." Very likely they would be more peaceable, for some of his hybrids were veritable little tigers; and I don't know, by the way, but that it is getting to be a little fashionable to have this sort. Ernest found them with most of the big bee-keepers in York State. Now, I hardly believe they have a preference for such bees; but my opinion is, that it takes so much time to keep the Italians pure they just let them slide; and then, rather than admit this state of affairs, they defend the hybrids. Yes, I know that hybrids gather honey; and I should not be surprised if, taking seasons as they come and go, hybrids, as a rule, would get just as much as pure Italians.

THE INTERNATIONAL AMERICAN BEE-ASSOCIATION.

FULL PARTICULARS, ETC.

Friend Root:—Inclosed find the programme of the I. A. B. A. for the Keokuk meeting. I wish to add to it, that the Business Men's Association of Keokuk have voted to pay for the rent of the commodious G.A.R. Hall out of their own fund, for the use of the bee-men. Thanks will be duly extended to them at the proper time for this generous action.

In regard to the questions to which you call my attention in GLEANINGS for Oct. 1st, I will say that I had already offered some of our own honey to the hotels in question, and had made sure of their having a supply on hand for the use of our bee-men; but to give our members a chance to taste different kinds, as you suggest, I have make another plan, and here it is:

A number of those who have expressed their intention of being present at the meeting have also stated that they would like to visit our establishment. As we are located nearly five miles from the place of meeting, it would be difficult for any one to attend all the sessions and come here at the same time, and I have thought of proposing to the convention to hold the last session at our establishment. We have lately built a new bee and honey house, 20 x 32, which is not yet occupied, and would do for a dining-room, and Mrs. Dadant, Jr., feels equal to preparing, with a little help, one meal for the fraternity of the I. A. B. A. So we might adjourn at 11 A. M. of the last day, and call up the closing meeting at Hamilton, after dinner. At this dinner we shall have a good chance of giving our bee-men a taste of all kinds of honey or honey-cakes which may be brought; and since you have made the first mention of this, I now call upon you to bring us sufficient samples of all that you can procure, or that your readers may wish to bring or send for the occasion. I will see to having the reporters on hand, and to treating them well.

I also propose to start a subscription to offer a premium of, say, $20.00 for the most palatable dish of any kind—cake, pie, preserves, etc., prepared with honey, said dish to be tested by competent judges at this meeting, and the manner of preparing this dish to be published in GLEANINGS subsequently.

Allow me also to state, that all goods sent for exhibition will be transported to the exhibition room free of charge, if *prepaid to Keokuk*, and addressed to me. I hope our dealers and manufacturers will avail themselves of this offer, and do all they can to make a notable display.
Hamilton, Ill., Oct. 8. C. P. DADANT.

The following is the programme:

FIRST DAY.—WEDNESDAY, OCTOBER 29.

9 A. M.—Call to order. Reception of new members. Payment of dues. Appointment of committees for question-box and other purposes.

10.—Address of Welcome.—J. E. Craig, Mayor of Keokuk.

Recess.

11.—"Fifty Years' Progress in Apiculture."—Thos. G. Newman, Editor American Bee Journal, Chicago.

Question-box.

1:30 P. M.—"Apicultural Journalism."—W. Z. Hutchinson, Editor of The Bee-Keepers' Review, Flint, Mich.

Discussion.

3.—President's Address.—Hon. R. L. Taylor, Lapeer, Mich.

3:30.—"Honey Pasturage of the U. S."—A. I. Root, Editor of Gleanings in Bee Culture, Medina, O.

Discussion.

Question-box.

7.—"Apiarian Exhibit at the coming Chicago International Fair."—Dr. A. B. Mason, Auburndale, Ohio.

Discussion.
Question-box.

SECOND DAY.—THURSDAY, OCTOBER 30.

8:30 A. M.—"What I Don't Know about Bee-keeping."—C. C. Miller, Marengo, Ill.

Discussion.

11.—Condensed reports of the Affiliated Associations in regard to crops and prospects.

Question-box.

1:30 P. M.—"Is It Best to Use Full Sheets of Foundation in Brood and Surplus Combs?"—Eugene Secor, Forest City, Ia.

Discussion.

3.—"Fixed Frames versus Suspended Frames."—Ernest R. Root, Medina, Ohio.

Discussion.

7.—"The Conditions Necessary to Insure a Honey Crop."—Prof. A. J. Cook, Agricultural College, Mich.

Discussion.
Question-box.

THIRD DAY.—FRIDAY, OCTOBER 31.

8:30. A. M.—Business of the Association. Report of Secretary and Treasurer. Election of officers.

11.—"In an Apiary Run for Honey only, are Italians or Hybrids Preferable?"—C. F. Muth, Cincinnati, Ohio.

1:30 P. M.—Volunteer contributions from different sources.

3.—"The International Bee-Association; Its Past and Future."—W. F. Clarke, Guelph, Ont., Can.

The question-box committee will receive questions at any time, and will appoint different members to answer those that are deemed of sufficient interest or importance.

As this is the first meeting of this International Bee-Association west of the Mississippi, it is hoped that the Western bee-keepers will make an effort to show what the West can do. A number of ladies are expected as usual. The essayists named in the programme will nearly all be present.

A special room on the same floor as the G. A. R. Hall has been secured for exhibits of bees or their products, or implements, and a special committee will report as to their merits.

The Hotel Keokuk, one of the best hotels in the West, a $3.00 house, will take members at $2.00 per day. The McCarty Boarding, in Estes House, on the same floor as the G. A. R. Hall, will board members at $1.00 per day.

Reduced railroad fares have been promised; but at the printing of this programme nothing definite has been given.

Parties wishing to attend will be freely furnished all necessary information and reduced rates if same are to be had. C. P. Dadant, Sec'y.

Our Homes.

Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete withal it shall be measured to you again.—Luke 6:38.

Some of you may perhaps say that I have had the same text before, or, at least, a part of it; and I confess that the truth contained in this one verse from Luke is one that I have considered and talked upon over and over, and I don't know but that I shall continue to talk upon it to the last day of my life. A few days ago the pastor of one of our churches asked me to talk to his people Sunday evening on business and religion—their relations to each other. The congregation was not very large, but it comprised my warm personal friends. Just before I commenced, the pastor whispered to me that the greater part of my own helpers in the factory and on the grounds were among the audience. He said it spoke well for me. I felt it, and I feel glad now when I think of it, that those I meet day by day are, at least the greater portion, warm personal friends. I told them that my first experiments in combining business and religion commenced with my conversion. It was in that same church where I was speaking between fifteen and sixteen years ago, that I announced to those gathered during a union meeting something like this. Said I:

"Dear friends, I have all my life been a busy man, and I propose to be a busy man still; but hereafter, God helping me, it shall be Christ Jesus first, and self second."

I did not realize how much that public promise and pledge included. But my dear Savior made it known to me what my enlistment meant, right off. When I opened up business next morning, I remembered that there had been a great deal of strife between myself and my next-door neighbor—a jeweler—as to who should sell things cheapest. We were each of us doing a comparatively small business. A silver-plated teaset was a pretty large thing for Medina just then; but we had both invested to the full extent of fifteen or twenty dollars, and a lady had been going back and forth from one store to the other to see who would sell lowest.

She came into my store that very morning, and said she thought she would take the one belonging to my neighbor, unless I could come down a little more in the price. I told her I had decided not to offer it any cheaper; in fact, I had made up my mind to let my brother in trade make the sale. She seemed right away to gain confidence in me, and began to ask my advice something as follows:

"Mr. Root, do you really believe that his set is just as good quality as your own?"

This question was a stunner. A week before, I should have assured her that it could not compare with the old established brand of —— & ——. I thought a minute before replying. I knew the reputation of his plated ware very well, and tried to put myself outside of business while I answered truthfully before the Savior whom I had promised to honor and serve. I told her, finally, that I felt quite sure that his was good—probably there was but very little difference. Then she remarked that the other man told her that he *bought* cheaper than I did, and that was the reason why he could sell lower. She asked if I thought this was true. What should a follower of Christ Jesus answer? I told her pleasantly that I paid prompt cash, and that I thought I got goods very low; but I added that it was still possible that he did buy a little lower than I did. Now came the last trying question:

"Mr. Root, I have bothered you a great deal already, and I feel a little bit ashamed for having made you so much trouble. I hope you will not think unkindly, but I think I should prefer the other set at the price."

By this time I had so far overcome self that I made up my mind that I would finish up the transaction for Christ Jesus, even if the goods did remain on my hands. I answered promptly something as follows:

"Why, my good friend, we are both anxious to sell, and I confess I rather need the money; but my friend ——— has not been as long in business as I have, and I suppose he needs the trade more than I do. What is my loss will be his gain, and on the whole I shall feel quite well satisfied to have him make the sale."

I put the teaset back in its glass case, and my customer went away. For several days I lost the sale of article after article, turning the trade right over to him. But a new peace and joy had begun to fill my soul. There were times when I felt a little doubt about the outcome; but it was not long. Pretty soon my rival in business came down to inquire what had happened. Perhaps I should tell you, that, for weeks or months before, we had been assailing each other through our county paper. Both of us bragged of our acuteness, and spoke sneeringly of the other. The change was so sudden, however, on my part, that it startled folks just a little. When he came down to see me he was changed too. Said he, "Mr. Root, if this is religion, I, too, want to be a Christian."

Is it any thing surprising, dear friends? It was not many days before it was my pleasure to kneel with him in prayer, and to hear him ask the dear Savior for mercy and pardon. Our relations from that time to this have always been pleasant. How could they be otherwise?

Now for the other part of the transaction. Did I really lose? Why, bless your heart, no. From the moment I took that stand, and began to make the little text at the head of our chapter my motto in life, my whole life was changed. I not only rose up out of the miry clay in spiritual matters, but it was the same in business. Please, now, do not think that I wish to exalt A. I. Root in what I am going to say, for you who have known me long and known me better will believe me when I say that I wish Christ Jesus, whom I try to serve, to have the glory and honor, and by no manner of means my poor self. Well, this is what I want to say: From the moment I stopped this little petty quarreling over who should be first, or who should have the trade, my reputation as a business man began to extend over a wider field. Every thing grew and prospered on my hands. God seemed pleased to verify his many promises in blessing all my undertakings.

In times past I have told you about answers to prayer, in the line of pecuniary matters. Don't imagine that, because I have ceased to speak of these things, such experiences come no more. I have thought best not to speak of them, because there is great danger of being misunderstood. But I want to speak of one right here. When I began giving employment to women and children who were left destitute of husband or parents, a great many times I undertook to give more work than I had work for them to do. In this dilemma I prayed that God would sharpen my business perceptions and abilities. I prayed, too, that he would send me the money, or tell me how I could get it. Let me tell you of one marked answer to such prayers. A hundred-dollar bill came in a plain envelope—no scrap of writing with it. It came just after I had been asking God for means. I was startled somewhat, but I told the clerk who opened the mails that somebody had sent it in a hurry, and that the order would probably come in the next mail. The next mail, however, did not bring any order, nor did it come for a week or two. It began to look very strange and unaccountable. Finally one of the good bee-friends wrote something like this:

"By the way, Mr. Root, I suppose you got that hundred-dollar bill I mailed you some days ago. I took it in a trade, when I was away from home, and I did not want to carry it around with me, so I just put it in an envelope and mailed it to you. I wanted it somewhere where it would be safe, and I knew that, if it got into A. I. Root's hands, it would be all right until I called for it."

There, friends, is a lesson for you. In holding fast to the Bible promise in carrying out my queer ways and fashions, as some called them, I was unconsciously laying the foundation of the great business that has been built up around me. Some called it a sharp trick of mine to advertise. Dear friends, it was no sharp trick at all. I had no idea of the outcome. My course of action sprang from a simple, honest determination to serve Christ Jesus by letting him come first, and self second. My experience has only verified the beautiful little text where Christ says, "Then shall the righteous answer him, saying, Lord, when saw we thee a hungered, and gave thee no meat? or thirsty, and gave thee no drink?" It was just so in my case. I built up a reputation without knowing it. Now, friends, you can do the same thing. If you are constantly straining every nerve and faculty for *self*, you will miserably and utterly fail. If, however, you are constantly and honestly seeking to put down self and exalt Christ Jesus, even in business matters, then shall you be built up. The above, you see, is put in my own words. Read how Jesus put the same thought about being exalted: "For whosoever will save his life shall lose it; but whosoever shall lose his life, for my sake and the gospel's, shall save it."

Perhaps some one may say, "Then there was no answer to prayer about it. The money came because this friend had confidence in you, and not because of your prayer." Not so, my good friend. God heard the prayer, and answered it, but he would not have heard it and answered it had I not been in that attitude of heart so that he could consistently hear and answer. A beautiful little text in the Psalms strikes the whole matter: "If I regard iniquity in my heart, the Lord will not hear me." You know the promise is, "Whatsoever ye shall ask in my name it shall be given you." The thing asked for or prayed for must be in Christ's name; and he who expects answers to his prayers must in his daily life strive to follow Jesus Christ.

I now wish to give you a letter which came to me just a few days ago. Without the preface of a talk I have just given you, I should hardly dare put it in print. The good friend who penned it exaggerates in his kind comments on my poor self, or he does not know me very well. He has, perhaps, had only glimpses of that better spirit which occasionally shows itself through my actions. I only wish I deserved half of what he says. As he pictures forth in his letter what a good man and a follower of Jesus Christ *ought* to be, I have thought best to give it. When you read it, please do not think it belongs to me, but think of it as a beautiful sketch of what any Christian man or woman *may be* if really hungering and thirsting after righteousness.

Friend Root:—I wish to say that I have dealt with you during the past eight or ten years, and during all those years I have *ever* found you the same—obliging and accommodating, almost to a fault. If you made a mistake, you have always stood ready to correct it. If *I* made one, you kindly called my at-

tention to it. If goods were received damaged or short count, you always replaced them, even if to do so it cost you *double their value.* I do not wonder at your being overrun with orders, and that every other year or so you are obliged to enlarge your facilities to accommodate your increasing business. People will cheerfully send long distances, and pay heavy freight charges, when they know that by so doing every thing they receive will be just as it was represented to be. I have had considerable dealing with strangers, or people living at a distance, and I know a little of the self-denial it takes to meet complaints and bear losses for which one is in no way responsible. I have received much encouragement from your Home talks. It does me good to read of your trials and experiences, because they are so much like my own. May your life be spared unto us many years yet is my prayer. J. D. Brands.
Warrington, N. J., Sept. 30.

Perhaps it will be well to look into the circumstances that caused our friend to write such a letter as the above. He was one of the many whose goods were delayed last spring; and when the time came to make payment he was behind; therefore he wrote us as follows. You will observe that the date is earlier than in the letter given above.

Friend Root:—I believe that the time allowed me on your bill of June 19 will be up on Friday, the 19th inst. I fear that I shall not have the money by that date, but I think I may be able to pay you a part or the whole of it some time during the week following. The man whom I ordered the goods for refused to take them because of the lateness of the season when they reached *me*, so I am obliged to carry them over until another year. Will you please send me a postal, stating thereon the full amount, with interest, due you up to date? J. D. Brands.
Warrington, N. J., Sept. 15.

From the above you will see that our bookkeepers had been asking him to pay interest. As soon as the transaction came to my eye I remonstrated against asking him for interest at all; but the book-keepers replied that this was according to the rule, and suggested that a different rule be made, where customers have been put out because of our delay in filling orders. Now, friends, please do not get the idea that I am the *only* one in our establishment who strives to love his neighbor as himself. The head book-keeper fell in with the suggestion with a hearty good will; and I find on the back of his letter she dictated about as follows:

"My good friend B., under the circumstances we shall make you no charge for interest, and you need not pay until another year unless it is convenient. If convenient to pay now, you may deduct interest on the whole amount of the value of the goods for one year."

Now, the above is only simple justice. Any supply-dealer who is so far behind in filling orders that the purchaser is obliged to keep the goods over until another season, should not ask pay for them until the customer is ready to order them for another season. If he has already paid for them, he ought to have a rebate equal to the value of the money, for the year he is out of the use of it. This is simply, in my opinion, doing as you would be done by; and even then it does not make up for the disappointment and perhaps heavy loss resulting from not having the goods when they were wanted. If we who are dealing in supplies will come up to this standard, perhaps it would help us to be a little more prompt in filling orders. It may be said, on our side of the question, that no one should wait for goods until he is ready to use them. This is true; but at the same time, every supply-dealer ought to be able to fill an order, say within 30 days after its receipt. If he can not he should pay damages to a reasonable extent. If the two parties can not agree as to just what the damages should be, I would resort to arbitration. Let me say, to the credit of our customers, that, although I have repeatedly asked them to send in their bill for damages (where the fault was ours and not the railroad company's), as yet very few indeed have asked damages. Only one man has made a claim that we could not consistently pay. This man wanted $25.00 damages where the goods he purchased really amounted to only about half that amount. We have only once been called upon to pay for the loss of a honey crop, and this was where the circumstances were very aggravating—see Homes for Aug. 1. This was where one of our clerks made Bracken County to read Breckenridge County; and as this blunder caused the friends to be looking for their goods day by day, and thereby lose the honey-crop, we decided to pay the full amount. The one who changed the name of the county paid $8.00; the two women who passed that postal card by, paid each $4.50 for their carelessness, and I paid $18.00, making altogether $35.00 for the loss of a honey crop.

Now, to those who say they can not stand such a way of doing business, I feel like repeating my favorite little text: "O ye of little faith! wherefore do ye doubt?" But, please remember that I do not advise that anybody should throw away his goods or money in a loose and slipshod sort of way. This would not be according to the Scriptures at all. In my talk about managing horses, in our previous issue, I told you the horse must be firmly disciplined, and that the rod should not be spared when *needed.* So it is in business. We are by no manner of means to let those who are evil-disposed run over us. To let people make their own terms in a lazy, shiftless sort of way, is entirely another thing. But when you have wronged a neighbor or customer by a delay or by a blunder, *make haste* to do as you would be done by; and as it is only human to be selfish, I would recommend that you go a little *beyond* the mark, to make sure of being just. Our text says, "Good measure;" and it also tells us that those who give good measure shall get good measure in return. Faith in God is a grand thing; and faith in a fellow-man is a grand thing also. When you give good fair measure and good quality, please have faith enough in your fellow-man to believe it will all come back again—yes, "shaken together and running over."

Now a few words more in regard to gaining the confidence, esteem, faith, and good will of this great outside world round about us. Who can tell what a reputation is worth? The Bible says, "A good name is rather to be chosen than great riches;" and, O my friends, I am sure—in fact, I become surer of it every day—that no one begins to know the half of the truth implied in this little text. The untutored savage —"savage" is not quite the word after all—the man or boy of the *world* who is profoundly ignorant of Bible precepts, and who knows nothing of the spirit of Christ Jesus, may be excusable for thinking that, if he saves a few cents each day by cheating and sharp practice, he will ultimately become rich. Ten cents a day would be $30.00 a year, and in ten years this would be $300.00. Why, he would not have enough to buy a farm, even if he cheated ten cents' worth every day for a *lifetime.* Yet a great many seem to think they can lay up property by *cheating.* Well, now, suppose, on the other hand, he *loses* 10 cents a day in the effort to be fair and honorable, and to give, in the language of the text, as he expects it to be given to him. He may be 10 cts. out of pocket for a few days, without getting any thing back; but pretty soon somebody will feel grateful for these few cents given for *Christ's sake,* and he will remember it, and watch for an opportunity to pay it back. And, dear friends, it is only human nature for him to pay it back *twice over,* or more. It is also hu-

man nature for him to speak of it to his friends. "That man actually paid me 10 cents a bushel more for my wheat than he agreed to." You know I told you a short time ago of how Mr. F. Schumacher, of the Akron Mills, paid a man 10 cents a bushel more for his wheat than he agreed to pay. Such kind of work soon gets to be a big advertisement. It goes from mouth to mouth. People say, "That man is honest. You can depend upon it, he will do all he agrees to, and a *little more, every time.*" Suppose a commission man who sells honey should commence by promising little, and in every transaction doing a little *more* than he promises. He would soon get the good will of the whole bee-keeping world. The reason is, that such things are so uncommon. Why, dear friends, there is a great unexplored region in this direction, in this matter of doing business according to the precepts of the Bible; and, oh what fun it is to just repeat one of these little Bible texts, when something comes up to make it fit just nicely!

Now, friends, I think you see the point of our little text; and you see how Christianity can be applied to business. "Fervent in spirit, serving the Lord." Do not, I beg of you, let A. I. Root monopolize this whole matter of building up a great business, with *Bible texts* for a foundation. Run opposition to him; beat him in his own line; *outdo* him in generous acts and love to your fellows. Don't you see how ridiculous it is? In Christianity there is *no* rivalry. There is not any select few in the prayer-meeting. If you have an enemy in the world, *there* is just where you want to see him, for he is just the man you long to do good to, above all other men. "Love ye your enemies, and *do good* to them that hate you." Do you fear there is no room in this world for us all, if we should *all* become Christians? "O ye of little faith!" The resources of a great Father above are beyond *all computation.* If this world in not large enough for the wonderful achievements that are about to be brought forth *in his name*, the whole planetary system is at his command. He *himself* has said (Malachi 3:10), "Prove me now herewith, saith the Lord of hosts, if I will not open the windows of heaven and pour you out a blessing that there shall not be room to receive it."

EDITORIAL.

He shall be like a tree planted by the rivers of water; and whatsoever he doeth shall prosper.—Ps. 1: 3.

"GREAT INGENUITY."

On page 711 of our last issue (I won't lay it to the poor types this time) I notice I said, "It took very great ingenuity" to modify the Benton cage for introducing. I would say nothing about it, only it looks as though I were lauding myself pretty highly for making only a very slight improvement. What I meant to have said was, that "it took *no* very great ingenuity," etc. E. R.

NO REDUCED RAILROAD RATES FOR THE INTERNATIONAL.

In another column we give the programme of the I. A. B. A. It was not published as soon as was expected, because the secretary was waiting to hear what rates the Western Traffic Association would allow. After a long delay and much correspondence, we have been obliged to say we shall probably get no reduced rates. Remember the date and place of the next meeting, Keokuk, Oct. 29, 30, 31, and come anyhow. Ernest and I expect to be present every day.

OUR DAILY BREAD.

When I dine at the large hotels, or on the Pullman cars, I always pay particular attention to the *bread* and the way in which they serve hot cakes—the latter especially, if it is accompanied with nice honey. Well, during the last month or two we have been feasting on the nicest product in the bread line that it has ever been our fortune to hear of. And what do you think it is? Why, simply gems made of flour and water—not another thing, except a little baking-powder (we use Cleveland's), a teaspoonful to a pint of flour, to make them light. Mrs. Root found the recipe in a newspaper; and we prefer these gems so greatly to any thing else that all other kinds of hot cakes made of milk, eggs, etc., are abandoned. You will want a Hunter's sifter, then run your flour and baking-powder through it three times, to mix thoroughly, and to work in plenty of air. Now mix with cold water until right (say of the consistency of cake) to ladle with a spoon into the gem-irons. These should be heated on top of the stove until *quite hot;* then ladle in your dough, bake in *a very hot* oven, and pass them around. When I am in a hurry I just break one open, leaving it hinged at one side like a snuff-box (I do not like the illustration, but I can not think of any other). Open the lid wide enough to put in a generous slice of butter, spreading it along a little, then shut the lid down, and eat as many as you like. When you are pretty nearly satisfied, put in some alfalfa or mountain-sage honey, and you can then probably eat about as many more. You need a glass of milk to go along with them; and if you are doing severe outdoor work a small *pitcher* of milk right by the glass will come handy. If this sort of diet, "milk and honey," does not give you strength and vigor, there is something the matter. Huber says these gems just from the oven are as nice as hot popcorn balls; and, in fact, they *have* much the flavor of nice popcorn. While flour made of nice selected wheat is a little nicer for the purpose, you *can* make beautiful light cakes of the *cheapest* flour to be found in the market. In fact, the way we discovered it was by having a sack of flour that Mrs. Root said she could not possibly make into decent bread, and she had tried and *tried* until she was about as desparate as—your wife gets under similar circumstances. If your wife has some flour that will not make nice bread, then tell her to make it into gems as above. If you have not a gem-iron, use gem-tins or small shallow tin basins, or even pie-tins. They are nice, anyhow you can fix them; but, if you want the real *popcorn* flavor, you will need cast-iron gem-irons. They are just as good when cold, as any bread; and if we have any left over for supper, they always go off like "*hot* cakes."

THE HONEY MARKET.

The demand for honey still continues good, and we have already disposed of about one-third of each of the two car loads mentioned in last number; and those who received it are well pleased, as the following will testify:

OUR NEVADA COMB HONEY.

Honey arrived to-day in very fine condition. It is as fine as I ever saw. It fills your description exactly. Thanks for packing so carefully.

JAMES A. BOCK.

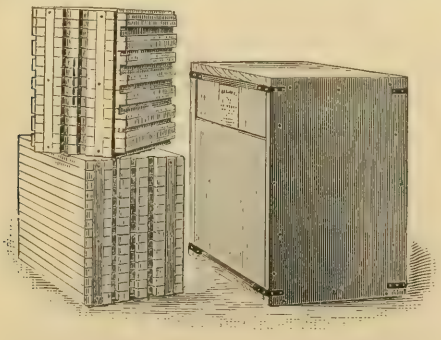
Farmington, W. Va., Oct. 8, 1890.

We can get more extracted honey of the same quality when this is gone; but comb honey seems to be pretty well taken up, and there is almost sure to be a scarcity this winter. Those in want of honey will find our prices in last number, 18 to 20c for comb, 9 to 11 for extracted, according to the quality you take.

THE DOVETAILED HIVE IMPROVED.

In another department of this number you will find a discussion of the merits and improvements on the Dovetailed hive as we are now making it for the season of 1890-91. We give here the revised table of prices, which you will find, by comparison with the old table, are a little higher in most cases. This slight advance is necessary because of the increased cost of the hive as improved. That you may understand the difference between the new hive and the old one, we repeat briefly the changes which we consider marked improvements. The hive and supers are ½ in. wider: instead of being 11⅝ inches wide inside, they are 12⅛. This makes room for the addition of a dummy or division-board in the brood-chamber, which is to be first removed before handling the frames. This additional ½ inch gives room in the supers for a follower and wedge, making it possible to have side pressure on the sections, which is so desirable. These division-boards, followers, and wedges are worth fully 15 cents per hive, and are added. Thick top frames with comb-guides or wire are used, and are worth a little more than the old style. Then there is the added width, a very small item. Out of the cost of these extras is to be taken the cost of slatted honey-board, which is left out entirely, unless ordered and paid for extra. We estimate the additional cost of these extras at 10 cents per hive; yet we have added nothing to the price of No. 1 complete, and only 5 cents to No. 2 complete, and 8 and 10 cents respectively to Nos 1 and 2 empty.

We now make the bottom slats to the section-holders ¼ inch thick instead of $\frac{3}{16}$, as formerly, because a few have had trouble with the light bottoms sagging. Dealers who do not make their own hives, and those who supply their neighborhood, can find nothing more convenient to handle or that will give their customers better satisfaction The hives are all packed complete in lots of 5, in the flat, as shown below.



5 DOVETAILED HIVES PACKED FOR SHIPMENT.

A box is made of the cover and bottom-boards, in which is packed the cleats and frames and inside fixtures, and the sides and ends of bodies and supers are cleated together as shown. You have to pay freight on nothing but the bare hives, and the cost of crating is reduced to almost nothing. Those wishing to handle them will do well to write for terms, stating about how many they can use.

DESCRIPTIVE LIST OF DOVETAILED HIVES.

None of these hives include tin on the covers or foundation for the brood-frames. Our experience is, that flat covers, well painted both sides, are better without tin; but we will add a sheet of tin, if so ordered, for 5c extra. If you get the tin, though, you will regret it. If you want to add the tin afterward, the cost of the tin alone is 10c.

No. 1 Dovetailed hive, 8 frame, complete, a 1½ story hive for comb honey, as shown in first cut on page 744, includes bottom-board; a body with eight thick top-frames and division-board; one super with a follower and wedge; 6 section-holders with tin separators, sections, and foundation starters, and flat cover.

No. 1E is the same hive leaving out the separators, sections, and starters; but every thing else mentioned is included.

No. 2 Dovetailed hive, 8 frame complete, includes just the same as No. 1, and another super with contents added, making a 2-story hive for comb honey.

No. 2E is the same as No. 2, leaving out separators, sections, and starters.

No. 3 and 3E are the same as No. 1 and 1E, except that they have T tins instead of section-holders in the supers.

No. 4 and 4E, same as No. 2 and 2E, with T tins instead of section-holders.

No. 5 Dovetailed hive, 8 frame, complete, is a 2-story hive for extractor, and includes bottom and flat cover, two bodies with 16 thick top-frames and two division-boards.

PRICE LIST OF DOVETAILED HIVES.

Order by number, and carry out the price.

NUMBER AND NAME.	Nail. pai't, each.	IN FLAT. each.	5	10	Weight of 10
No. 1 Dov. hive complete	1.50	1.20	5.50	10 00	300 lbs.
No. 1 E, Dov. hive (empty)		1 00	4.50	8 00	280 lbs.
No. 2 Dov. hive complete	2.00	1.60	7.50	14.00	380 lbs.
No. 2 E Dov. hive (empty)		1.20	5.50	10.00	340 lbs.
No. 3 Dov. hive complete	1.50	1.20	5 50	10 00	300 lbs.
No. 3 E Dov. hive (empty)		1 00	4.50	8 00	280 lbs.
No. 4 Dov. hive complete	2 00	1 60	7 50	14.00	380 lbs.
No. 4 E Dov. hive (empty)		1.20	5 50	10.00	340 lbs.
No. 5 Dov. hive complete	1.60	1.20	5.50	10.00	340 lbs.

Hoffman frames instead of thick top frames 5c per hive extra.
Closed end frames " " " 5c " " "
Metal cornered " " " " 10c " " "
Van Deusen Reversible " " " 10c " " "

In No. 5 the extra price for above frames is double above rate.

Honey-boards may be added at price in table of honey-boards.

Hives furnished with gable covers and super covers, instead of flat cover, 15c per hive extra.

Hives with tinned covers, 5c each extra.

The tin for covers ordered separately, 10c each.

We will make the Dovetailed hive 10-frame instead of 8-frame, in any of above numbers, as follows:

Nailed and painted, complete, 25 cts. each extra.

In flat, complete, 20 cts. each extra.

In flat, empty, 15 cts. each extra.

DISCOUNTS FOR QUANTITY.

For 20 hives, deduct 2 per cent.
For 30 hives, deduct 3 per cent.
For 40 hives, deduct 4 per cent.
For 50 hives, deduct 5 per ct
For 60 hives, deduct 6 per ct.
For 80 hives, deduct 8 per ct.
For 100 hives or more, deduct 10 per cent.

NAILS SUITABLE FOR ABOVE HIVES.

	Price for 1	5	10
Nails for No. 1 Dovetailed hive	10	25	45
Nails for No. 2 Dovetailed hive	10	30	55

Nails for Nos. 3 and 4, same as for Nos. 1 and 2 respectively, and for 10-frame same as for 8-fr. hives.

PRICE LIST OF DOVETAILED-HIVE PARTS.

NAME OF PART.	N'l'd, each.	P't'd, each.	IN FLAT, each.	IN FLAT, 10	Weight of 10
8-fr. Dov. bottom-board	.12	.15	.10	.80	43 lbs.
8 fr. Dov. flat cover	.18	.20	.15	1 20	42 "
8 fr. Dov. gable cover	.30	.35	.25	2.00	36 "
8 fr. Dov. body, empty	.30	.35	.25	2 00	80 "
8 fr. Dov. super, EMPTY	.18	.20	.15	1.00	40 "
8 fr. Dov. super, sec. holders	24	.25	.25	2.00	60 "
8 fr. Dov. super, with T tins	.24	.25	.25	2.00	60 "
8 fr. Dov. sup., comp., sec., etc.	.48	.50	.45	4.00	80 "
10 fr. Dov. bottom	.14	.18	.12	1.00	50 "
10 fr. Dov. flat cover	.20	.24	.18	1 50	50 "
10 fr. Dov. gable cover	.35	40	.28	2.50	40 "
10 fr. Dov. body, empty	.35	.40	.30	2 50	85 "
10 fr. Dov. super, EMPTY	.18	.20	.15	1.30	42 "
10 fr. Dov. super, sec. holders	.28	.30	.25	2.30	65 "
10 fr. Dov. super, with T tins	.28	.30	.25	2.30	65 "
10 fr. Dov. super complete	.52	.55	.50	4.50	85 "

For the same quantity of parts the same discount will apply as on complete hives.

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HONEY STATISTICS.

OUR INDUSTRY GROSSLY MISREPRESENTED BY MISLEADING AND INCORRECT REPORTS.

We take the following from the *American Bee Journal* of Oct. 18, page 698:

The following is from the "Report of the Statistician," in the report of the Secretary of Agriculture for 1889, page 251. I should like to call attention to the last paragraph. Will not this be taken as confirmation of the Wiley lie, which is the basis of so many newspaper reports derogatory to our pursuit? Please ventilate the matter. H. G. BURNET.
Alva, Fla.

Here is the Statistical Report which Mr. Burnet refers to:

BEE-KEEPING.

Among the minor branches of rural industry, bee-keeping is one of the most important, though its importance is not generally recognized, from the fact that it is almost everywhere carried on as an incident of general agriculture, and but rarely as a leading rural occupation.

Every State and Territory reports bees and more or less honey, usually a hive or a few colonies for each farmer rather than extensive apiaries and large production. In some localities, as in portions of New York, Ohio, Tennessee, and California, where existing conditions are particularly favorable, apiculture is more prominent, dominating other industries in a neighborhood, though very rarely the leading branch of agriculture over any considerable area.

The value of the annual product of honey and wax is not generally realized. They are produced more or less extensively in every section of the country, and the aggregate value is large—much larger than that of other crops of which more notice is usually taken. It almost equals the total value of the rice or the hop crop, falls but little short of the buckwheat product, exceeds the value of our cane molasses, and of both maple syrup and sugar. It largely exceeds the aggregate value of our vegetable fibers excepting cotton, and in 1879 was half as large as the wine product of the year.

The latest official record of production by States is the return of the national census for the year 1879. It made the honey production 25,743,208 pounds, and wax 1,105,689 pounds. After careful study of all available data of local values and market prices, the average farm value of the honey was estimated at 22 cents per pound, and the wax at 33 cents, making the aggregate value of apiarian products at the place of production $6,028,383. The product of the principal States in that year was as follows:

STATES.	HONEY. lbs.	WAX. lbs.
Tennessee	2,130,689	86,421
New York	2,088,845	79,756
Ohio	1,626,847	56,333
North Carolina	1,591,590	126,286
Kentucky	1,500,565	46,912
Pennsylvania	1,415,093	46,610
Illinois	1,310,806	45,640
Iowa	1,310,138	39,565
Virginia	1,090,451	53,200
All other	11,678,184	524,984
Total	25,743,208	1,105,689

Under the head of "all other," in the above statement, there is grouped the production of 36 States and Territories, ranging from 1,056,034 pounds of honey in Georgia to 50 pounds in Idaho.

The census of 1870 was defective in its returns of product for many crops, and its record of honey and wax in 1869 is undoubtedly much too low. It made the honey product only 14,702,815 pounds, too low in the aggregate, though the falling off in all States indicates that it was a year of short production. Illinois was the leading State, with a crop of 1,500,000 pounds, while North Carolina stood second.

The returns in 1860 were more satisfactory, and they show that the product of 1859 was but slightly exceeded by the crop of 1879, after 20 years of growth. The production of wax was actully greater. Many States show a product greater than that of 1879, and the aggregates of 23,366,357 pounds of honey and 1,322,787 pounds of wax indicate that there has been a comparative decline of the industry, the increase of population being taken into consideration.

The nine States given in the preceding table as those of principal production in 1879, produced 14,000,000 pounds. The same States 20 years earlier had a record of 13,900,000 pounds. With our rapid annual increase of population, to stand still in aggregate production is to retrograde. A more striking way of showing the decline in the industry is by a study of

the comparative supply of the product at widely separated periods.

Our foreign trade in honey has never been large, and the balance has fluctuated. During five years past our average annual exportation has been valued at only $82,489, and importation at $52,891, making the value of the net exportation only $29,598. This little exportation goes principally to the United Kingdom, France, and Germany, while our foreign purchases come mainly from the West Indies and Mexico. The balance of trade is too small to affect the supply, and our domestic consumption is satisfied with our home production.

In 1859 our production was 23,366,357 pounds, and our net importation not far from 3,000,000 pounds, making the supply available for consumption that year approximate 26,000,000 pounds. On the basis of the population June 30, 1860, this was a *per capita* supply of eight-tenths of a pound.

Twenty years later, when tremendous advances had been made in almost every branch of industry, the production of honey amounted to only 25,743,208 pounds, and the official records actually show a net exportation of honey, or something shipped as honey, amounting to about 570,000 pounds, making the net supply available about 25,000,000 pounds, or a million pounds less than at the first period. The supply per head was less than five-tenths of a pound. During the same period the *per capita* consumption of sugar and other sweets increased. Wealth and the ability to gratify taste for luxuries are greater, and yet the data seem to show a reduced consumption of this luxurious sweet.

So anomalous does this appear that some explanation must be found. If the supply per individual unit had been the same in the last period as the first, it would have required a product of 40,000,000 pounds. What has taken the place of honey in domestic consumption? Does the enormous increase in the manufacture of glucose and other saccharine adulterants indicate that a fraudulent article makes up the remainder of the needed supply? Did our people in 1879 consume 15,000,000 pounds as substitutes, in the belief that they had the genuine product of the hive? Such would be a reasonable explanation of the comparative decline in bee-keeping.

We heartily indorse (as also will every intelligent reader) the vigorous reply made by the editor, Mr. Newman, to a report so manifestly incorrect and absurd. He says:

The statistical table referred to, from the Census Report of 1880, is manifestly incorrect. One simple item will show its error so palpably that no further words will be necessary. California's honey crop is the largest in any State, and yet in the Census Table it is credited with only about one-half as much as Arkansas, one of the States producing but a comparatively small amount of honey!

It also gives North Carolina credit for 50 per cent more than Michigan, and more than Illinois or Iowa! Such "statistics" are very misleading, to say the least.

Our estimate, based upon statistics gathered by us some years ago, is, that there are 300,000 bee-keepers in the United States and Canada, and the average annual product is 100,000,000 pounds of honey. Our tabulated statement by States may be found on page 320 of the *Bee Journal* for 1881.

It is a notorious fact that the statistics given in the census of 1880 are utterly unreliable. This was admitted by Col. C. D. Wright, Chief of the Bureau of Labor Statistics at Washington, who was one of the principal persons who directed the formulating of the census that year. In an address delivered before the Social Science Association at Saratoga, N. Y., in 1887, Col. Wright reviewed the whole census matter, and pointed out its shortcomings, and then said:

These two questions—capital invested and average wages—as answered by the census, illustrate the fallacy of attempting to solve a certain line of economic questions through the census as it has existed. In making this criticism, let it be understood that I arraign myself as severely as any one else; for within a few years I have followed, in all the census work in which I have been engaged, the old form. Nor did I fully comprehend the enormity of the error, and the infinite harm it has done, and is likely to do.

With this admission by Col. Wright, of the unreliability of the Census Report, we are surprised that the statistician, Mr. J. R. Dodge, should attempt to make it prove that the industry of apiculture was declining.

Upon one erroneous conclusion he bases another argument; viz., that, because of the decreased honey production, the people have been annually "consuming fifteen millions of pounds of substitutes, in the belief that they had the genuine product of the hive."

By intimation, the statistician indorses the Wiley lie about manufactured comb honey, years after it has been exploded and acknowledged to be a falsehood, by its author!

No, sir; your conclusions are as erroneous as your premises. The production of honey, instead of being only twenty-five millions of pounds, is over one hundred millions—four times as much. Its increase has kept pace with other products; and it is the "pure product of the hive," too.

It is too bad that such incorrect and damaging statements and arguments should be published by those who ought to know better; and, going out under the indorsement of the government, they not only deceive those not posted, but also form the basis for other falsehoods.

The above illustrates vividly the result of setting somebody to collecting facts who is entirely unacquainted with the matter in question. It is the old story over, of going to Agassiz and Tyndall to know about the natural history of the honey-bee, when a bee-keeper in his teens could have told either of them what idiots they were making of themselves. This is strong language, I know; but I think it is time that something were done. We pay out our money to somebody supposed to handle the matter in question, and the above shows the result. Any bee-keeper in our land, at all conversant with our journals, could have told the statistician that California has of late years been furnishing more honey than half a dozen fair honey States, and that Arkansas is almost entirely unknown in the industry. It may be that Arkansas has undeveloped resources; but I do not remember that a large report has ever been made through our journals from that State, and yet there are dozens of States comprising bee-keepers who produce honey by the carload. The old adage, "Every man to his trade," is what is needed here. The statistician should be a bee-keeper himself, or else he should consult some intelligent, thoroughly posted bee-keeper. The editors of any of our journals could readily point out a competent man at any time; and so with statistics in our other industries.

SWARMING AND SECTION HONEY.

FRIEND DOOLITTLE SUGGESTS HOW TO RESTRAIN SWARMING AND ENCOURAGE HONEY-STORING.

My excuse for writing this article out of season (if any article on bees can be out of season) is from the fact that a party in Colorado is considerably agitated over the matter, and wishes me to write an article on the subject as soon as may be. The party says they have no trouble in following the ideas I have sometimes advanced in regard to spreading the brood, which our good friend Mrs. Harrison was sure might be misleading to some, for there was no trouble in getting the hive filled with brood and bees by the time the honey harvest from alfalfa arrived by using the plan; but the trouble was, that

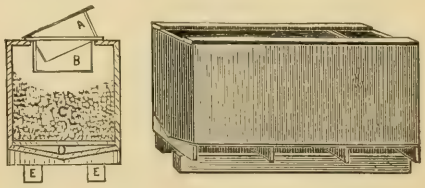
when the hives were thus filled and the flow of honey occurred, excessive swarming was sure to result, which gave a loss in honey and often in queens, owing to the fact that the queens were not allowed to go with the swarms. Swarming, when working for section honey, can not very well be avoided, or at least I have not been successful in avoiding it without sacrificing a large amount of the honey crop. In fact I would as soon have *excessive* swarming as to try to hinder swarming altogether; for in this hindering process, by any of the plans with which I am acquainted, where the ordinary hive is used, the bees are so thrown out of their normal condition that they will not work to the best advantage. Again, I think that a mistaken idea prevails with some in thinking that the brood-chamber to the hives must be kept full of brood the whole season through. This is not the secret of a successful honey production, but it lies in having the brood-chamber filled with brood before it is filled with honey. Thus doing, we get the laborers for the first harvest, and, so far as my knowledge extends, when the brood-chamber is thus filled at the time the honey-flow commences, there will be bees enough reared for all practical purposes after this, even though the combs may be filled later on, two-thirds full of honey. There are two plans or ways of management which can be used successfully during the swarming season, in this locality; and if I lived in Colorado I would try them there, and then, if they did not work, I would study something else. Right here I wish to say that no one should follow any of our writers blindly, that is, without having some thoughts of their own, thoughts which will lead them out in all directions from the beaten path of a Langstroth, a Quinby, a Root, a Dadant, a Doolittle, or any other writer. Don't be a machine, but be the *master* of a machine, or of any thing else you may take hold of. So when you find yourself confronted with the swarming problem, or any other, master it, if it "takes all summer," and do it by *your own* planning, or the modifying of some plan that you have read or heard about. In this way you will grow; and by telling us how you did it, in some of the many journals of our day, you will help some one else to grow; and thus we shall be of mutual benefit one to the other, just as the all-wise Father designed we should be. "No man liveth to himself, and no man dieth to himself." But, to return: When a swarm issues, and while it is out in the air or clustered, go to the hive from which it came and take out all the frames of brood and put in their places frames of empty comb, frames filled with foundation, or frames having starters on them, as is best pleasing to you, returning the surplus arrangement on the hive as it was before; and if the swarm is a large one, it is well to give additional room by way of surplus sections. Now hive the swarm back in the same hive, or let it return if the queen has her wing clipped. Set the frames of brood with the adhering bees in a hive on a new stand, and in 24 hours give a mature queen-cell or a queen, according to what you can supply. This should satisfy any colony; but if the swarm on the old stand persisted in swarming out in a day or two, or in a "week's time," as the writer says theirs often do, then I would cage the queen for from a few days to two weeks, according to circumstances, after which I would release her. This is on the plan of doubling our colonies each year. If I wished no increase, then I would put on a queen-excluder after putting in the frames below, or after putting these frames in the brood-chamber where the frames of brood were taken from, and on top of this I would place the hive containing these frames of brood, while top of this last I would put the surplus arrangement that was on the hive when the swarm issued. This should do away with all further swarming, but it results in filling these combs which now have the brood in them, with honey, which must be extracted, while it lessens our crop of section honey just that much. Now, if, instead of putting this hive of brood immediately on top of the queen-excluding-honey board, we place the sections there and then place the hive of brood on top of the sections, we shall get our honey mostly in sections, but we shall not be as sure of stopping all further swarming, for, as the bees hatch out from the brood above, they will crowd below, thus making the colony appear more populous than it did in the other case. If the sections were open-top sections, then it would not appear more crowded, for the bees would be equally distributed throughout the whole hive, but in this case we should have our section honey badly travel-stained, which is about the same as having it in the brood-combs, as we did where the sections were top. To obviate this I allow the bees a passageway only at the outside of each of the outside sections, which is done by a slot in the outside boards or sides of the case or section-holder. In this way the colony is kept together and good results secured, and should work in Colorado, it seems to me.

Borodino, N. Y. G. M. DOOLITTLE.

UNCAPPING-BOX.

A MOST EXCELLENT DEVICE.

On page 30, Vol. 17, Mr. Root promised the readers of GLEANINGS a description of my uncapping-box; but as he has not fulfilled his promise yet, I will try to help him out. It was made by R. Wilkin about 12 years ago, and was so well planned that I should not care to have it changed in any way now. It is 2 feet wide, 2 deep, and 6 long outside, made of ⅞ lumber dressed on both sides. The bottom is 2 inches lower in the middle than at the sides, and is lined with tin to keep it from leaking. Eleven pieces of wood, 1x1x22 inches, are laid across the bottom about 6 inches apart to support the screen which the cappings fall on. This leaves room below the screen for the honey to run to one end,



M'INTYRE'S UNCAPPING-BOX.

where it passes out through a tin pipe. Two pieces, ⅞x3x72 inches, are nailed on the top edge, one on each side, to contract the top of the box to the same width that a Langstroth hive is long inside. Two pieces, ⅞x⅞x18⅜, nailed one on each end between the two last mentioned, bring the ends up even with the sides. One piece, ⅞x3x18⅜, is fixed across the top of the box about 14 inches from one end, with an iron pivot sticking up through it, 1½ inches high to rest the combs on. When uncapping you set one end of the comb on this pivot, uncap one side, whirl it around, and uncap the other side, and set the comb in the end of the box, as in the diagram. When we have a surplus of combs we often hang them in the other end like B, in the diagram. C is cappings, and D the space for the honey to run out.

The bottom of the box is 7 inches from the floor, which leaves room for the honey to run into the strainer illustrated on page 248. This makes the top of the box about 32 inches from the floor, which is about the right height for me to uncap easily. A shorter person might make the box a little shallower, or lay a plank on the floor to give the right height, which is the way I do when my wife uncaps. I know most people will think this box unnecessarily large. I will tell you why I think it is not. When uncapping over a round can like Dadant's, the cappings fall on top of those taken off earlier in the day; and when the can is half full the honey has to pass through such a pile of cappings that it takes a long time to all run out; and when you put the cappings in the sun extractor they are heavy with honey. With this box, when a pile of cappings accumulates under the knife we take a four-tined fork and pitch them over to the other end, where they may drain for four or five days. There is a small stream of honey running out of the box all the time, day and night, during the extracting time; and when the cappings go into the sun extractor they are almost dry. I think it pays well for the extra space in the box, because all the honey which goes into the sun extractor is spoiled for the market. J. F. McINTYRE.

Fillmore, Cal., July 27.

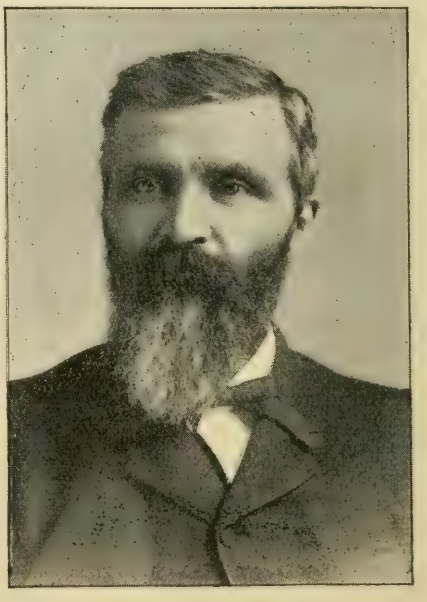
Friend M., I have had experience enough with uncapping to appreciate every point you make; and our good friend R. Wilkin ought to have a shaking for not giving this to the world long ago. I think I can say for the rest, that we bee-keepers tender you and Mr. Wilkin both a hearty vote of thanks.

HON. R. L. TAYLOR.

HIS HISTORY AS FARMER, BUSINESS MAN, LAWYER, BEE-KEEPER, AND SENATOR.

To my mind, the most alarming feature of the census just taken is the rapid increase of population in the cities and the corresponding decrease in the rural districts. Who has not noticed, during the past ten years, the constant influx of energy and strength from country to city? The men of push and ability who are leading our enterprises to-day, not only as business but as professional men, spent their boyhood on the farm. True, we have an Adams family, but we have hundreds of such men as Greeley, Webster, Lincoln, and Garfield, that went from country to city, and carried life, vigor, and energy with them. What will become of our cities if the country fails to pour in this new and vivifying power?

Our respected friend R. L. Taylor, Senator in Michigan, and President of the National Bee-Keepers' Association, had the advantage of country birth. He was born on a farm at Almont, Lapeer Co., Michigan, Nov. 3, 1839. This was not the only vantage ground of our young candidate for a place of influence in the world. He was the son of Scotch parents who were pioneers in that new heavily timbered part of Michigan. We need hardly say more to prove that our friend was early taught to be religious, truthful, honest, and industrious, for how loyal are almost all the Scotch to all these grand principles, which are the very basis of true manhood! When I add to all this the fact that the parents were sturdy and vigorous, able to carve out a home in the forest wilds, I have said enough to show that our friend was born to unusual fortune. The mother, though a pioneer farmer's wife, and mother to fourteen children, still lives in good health, at the age of 79. Ten of the children still survive. President Taylor is the oldest of the six surviving sons. Like most farmer boys, young Taylor worked on the farm summers, and went to common district school in the winter. At the age of 19 he lost his father, who was carried off by an accident, when the severe and arduous duties of a large farm devolved on our friend. But he had learned to labor, and was equal to the emergency. But our friend aspired to a college education. He taught winters, and *prepared himself* for the Classical Department of the Michigan University, which he entered in 1862.



HON. R. L. TAYLOR.

In 1865, a thirst for business, which robs so many college students of their diplomas, took Mr. Taylor from the college. He entered mercantile life, which he followed at Almont very successfully for three years. But mere business was not wholly to Mr. Taylor's tastes, and so he spent his spare time—every determined man, however prompt in business, can find spare time—in the study of law. He was admitted to the bar in 1869. In 1872 he was elected Register of Deeds by the largest majority ever received by any county officer of his county. He then moved to Lapeer, where he has resided ever since. Two years later he was re-elected. In 1877 he resumed the practice of law, and was elected Prosecuting Attorney the following year.

At this time, fortunately for apiculture, two colonies of bees fell into Mr. Taylor's possession. His early life and habits had developed a taste for rural life and pursuits that had not left him with his youth. Country air and landscape still lured him toward the country, and led to the purchase of his present beautiful home in the suburbs of Lapeer. His bees increased rapidly, and his interest kept pace, owing, doubtless, to the success which marked his labors from the first. Thus he declined a renomination as Prosecuting Attorney, and very soon gave up the practice of law, that he might devote his entire time to his bees. Thus here as everywhere Mr. Taylor is consistent. He

preaches exclusive apiculture for the apiarist, and does what very few of his colleagues in this faith do—he practices what he preaches. He is, perhaps, the largest bee-keeper in our State.

As an apiarist he stands among the first. His cautious, scientific, thoroughly informed mind grapples even with foul brood, and the fell disease is worsted in the struggle. He told me once, as I visited his apiary, that he rather enjoyed the malady, as it was interesting to watch and study it. How few are cautious enough to hold this scourge at arm's length, even though it be right in the apiary!

Mr. Taylor is one of Michigan's best bee-keepers. The American Society is honored no less than Mr. Taylor in his presidency. He is so expert in bee-keeping that he can "feed back" at a profit, and can produce an immense crop of comb honey—his specialty—without any use of separators, and yet take the very cream of the market. Like nearly all successful bee-keepers he is very ingenious. Every thing about his apiary is neat, orderly, and convenient. His invention to fasten foundation in the sections is doubtless one of the very best in use. He uses the new Heddon hive, and would have no other. One has only to see him manipulate these hives and find the queens, to become convinced that, in his hands at least, they are a tremendous success.

Mr. Taylor's style as a speaker and writer is quiet, earnest, but very convincing. He is candid, very cautious, and rather conservative; so those who know him place great weight upon his opinion or judgment. Slow to draw conclusions, his conclusions rarely need reconsideration. In our literature, in our conventions, and, best of all, in his home city, he is a power. His presence is felt to be of signal advantage.

That Mr. Taylor's neighbors appreciate his worth is evinced in the fact that he was elected to our State Senate in 1888, where he was an able and influential member. He is renominated for the position, and, with almost no doubt, will be re-elected.

Mr. Taylor has been a member of the church for over thirty years. He is an elder in the Presbyterian church, and thus again honors and is loyal to his Scotch descent. But there is no need to publish the fact that Senator Taylor is a Christian. The fact shines out in all his life and acts. He is a true, clean, reverent man—one of the men that always make us feel better when we have associated with them.

Mr. Taylor has been married for nearly a quarter of a century. His wife is a fit companion for such a husband. Like her husband she takes great interest in religion, temperance, and all else that is good and helpful to others. Though they have none of those best adornments of the home—sweet, loving children, yet their home is one of those social centers that so richly bless every community where they are found.

Agricultural College, Mich. A. J. COOK.

Friend C., we all know you have a remarkable talent for studying bugs and insects; in fact, you often find out a thousand little things about them that perhaps the most of us would never notice at all. But I did not know before that you had such a rare faculty of taking in—or, perhaps I should say, *recognizing*—all these little individual traits that go to make up a man's character. My acquaintance with friend T. has been mostly at conventions; and as I read your description, point after point, it almost made me smile to see how carefully you have filled out the peculiarities and qualities. Why, your pen-picture would almost enable one to know the man, even if the reader did not have the excellent portrait, furnished us by the half-tone process. We can all rejoice that friend T. has seen fit to take up bee culture—yes, even if he is a little severe sometimes on some of us whose loose ways of thinking and speaking contrast so strongly with his own cautious and careful ways.

THOSE CLOSED-END FRAMES.

ANOTHER ENTHUSIASTIC ADMIRER OF THEM.

During a few of the past rainy days I have been looking over Ernest's notes of travel, and I have laughed more than once while reading them since the Sept. 1st issue, and there are several others that have enjoyed it too. In 1886 there was a request in GLEANINGS for an expression concerning the reversing frame. I then expressed my opinion that they were good, but their full value would not be appreciated unless they were used with an end-bar 1⅜ wide (the closed-end frame), and a division-board on each side, fastened in place by a wedge.

On page 641, Sept. 1, you make mention of the closed-end hanging frame used by Mr. Tunicliff, in the hives of his 400 colonies. In a letter received from the Home of the Honey Bees in 1884, in answer to one I wrote concerning the wide end-bar, it is stated as dictated by A. I. R. that the wide end-bar was not practical, so far as rapid handling was concerned. Well, now, I should say that there is to be a change of opinion at the Home of the Honey Bees, or GLEANINGS is not an indication of the future. But let me give you a few points that may not have been noted by you, Ernest, on page 670, Sept. 1.

Several years ago I noticed that the wide-end-bar frame prevented that clogging of the ends of the narrow frames, and the hive with comb and honey; and the number of times that bee-keepers have said, "I wish the fools would put the honey where it belongs" is a strong argument for closed-end frames. Secondly, there is an air-chamber at the ends of the frames, preventing that needlelike frost from extending between the combs in winter, which is another valuable feature. Thirdly, I place a strip of lath, 8 inches long, at each end of the hive, perpendicularly. Shove up one of the division-boards (I always use two), then your four or five frames, then your other division-board, and put your packing in good and tight, and your bees are just as well off as in a chaff hive, and in a single-walled hive at that.

I think I hear some of you say, "I guess not." Well, here is what I have tried and seen tried for several years. Make your hive 12¼ wide inside, bee-space at the bottom. The hive-body should be 9⅝ deep, all around. To make the entrance, a strip of shingle one inch wide is pushed between the hive and bottom-board on each side of the hive (*a la* C. A. Stone, Southbury, Conn., 1878). The frames are then placed in as before described. Three strips of burlap, 20 inches wide by 24 long, are folded so they are 20x12; one of these is laid across the top of the frames, with the folded edge just reaching over the top of the opposite division-board. The other two are put in the same position for the other side, and the packing is put in. Now place on the top of the frames a half-length barrel-stave with a ½-inch-square stick tacked on the under side at each end. One of the burlap cloths from the side that the two are on is laid over the stave, then the one from the other side, and then the second of the two. Thus

we have six thicknesses of burlap on top, and a ⅜ bee-space at each end, and nearly 2 inches of packing on each side. A folded newspaper is placed on the top of all, so it will just stick over all around and allow you to put on the cap. I have seen these hives stand in the most bleak and windy places in Connecticut, and there are a few of them that are bad enough. These hives have stood the test by the side of the chaff hive, and in every respect were preferred.

Right here I wish to say, that, with the wide-end-bar hanging frame, I, with quite a number of others, want two division-boards, one on each side. That is so that the hive can be opened from either side; and I like a long strip of wood 12 inches long as a key for each side, in preference to a thumb-screw, having used both because I can handle the wedge faster and easier. I prefer the lag strips on both sides of the division-boards at the ends ⅛ inch thick, 1 inch wide, so that the division-boards, when they become sprung, can be turned around so as to spring them back by using the wedges.

With all this rigging and complication, I can handle fully twice the number of hives that I can with the common hanging frames, taking the season all through. But if you undertake to handle every comb separately, and have a very strong colony, it is a little slower; but in such cases I shake the bees from the comb in front of the hive, and keep right along. I have not been troubled with combs being so bulged that they would rub with the 1⅜-spaced combs, because I generally use full sheets of foundation; and whenever I have used only foundation starters I use them between full combs.

I tried the single reversing comb and the whole hive reversible for some time, with both wide and narrow end-bar frames, and I have been forced to accept the wide-end-bar hanging frame. It came slowly, and has been a bitter dose; but it is here; and for the L. size frame it has no equal. With me and some others it stands wide-end bars and reversing wires.

Try a few hives with frames 4¼x17 inches, inside measure, and try a cap with sides 13 inches deep, front, and 11½ back, allowing the sides to project 1½ inches below the front board of the cap. These deep caps have proved a very beneficial thing in three points. First, they make first-class protection in winter, late fall, and early spring. Second, bees will go into the sections quicker and earlier in the season, which is quite an item. Third, the bees do not desert the sections late in the summer.

Bees do not cluster quite so early in the fall, which here in Connecticut is quite an item; and this deep cap, wide-end bar, reversible frame, with the two division-boards and chaff-packed-bottom hive, will be the hive for that fourth class of bee-keepers mentioned on page 697. It has stood the test for years past in cold and windy locations, and in warm and sheltered places, with good results. H. L. Jeffrey.

New Milford, Conn., Oct. 15.

There is no doubt that the closed-end frames are a great deal warmer for winter. Both Elwood and Capt. Hetherington have urged that, and their statements are not to be lightly esteemed. With a division-board on each side, and closed-end frames, we shall virtually have a double-walled hive out of one made of ⅞ lumber. While the idea is by no means new, I am glad you suggested it, for it is an opportune time for giving the plan a trial. For practical working, I do not believe that the majority of bee-keepers would like *two* division-boards. The bee-keepers I visited, using fixed distances, used only one. It is true, the extra division-board gives added protection; but can not the exposed side—the side without the division-board—be pointed toward the south, or that direction from which comes the least cold wind?

MANUM'S MEDINA VISITOR.

MR. MANUM'S RECOLLECTIONS OF THE THINGS SAID AND DONE.

"Jennie, I wish you would step into the shop a moment" (the shop being adjacent to the house).

"Yes, sir; what is it?"

"There; do you think this box will hold all the lunch you have prepared for me to take to camp-meeting?"

"Yes, I think so; but how will you prevent the pies and cake from getting jammed if all are put in together?"

"Well, I am going to nail cleats on the inside, three inches from the bottom, and after the pies, etc., are put in I can fit another bottom over them and then put in more stuff, and then another bottom, and so on until the box is full."

"Oh, yes! I see; that will be nice."

"There, Mr. Manum; some one has just driven into the yard—two gentlemen and a little girl, in a carriage. I must scud back into the house, for they will probably be in here in a moment."

"I will step out and see who they are. Why! how do you do, Mr. Crane?"

"Quite well, thank you. I suppose you know who this gentleman is I have with me?"

"Well, I imagine it is Mr. Ernest, the lost child—or, rather, the one whose whereabouts for the past few days has been a mystery to me. Yes, I can see the 'Root' sticking out of his eyes, even though they are covered with glasses. How do you do, Mr. Root? I am glad you have got here at last," giving the "Root" a hearty hand-shake as he remarked,

"Yes, Mr. Manum, I am Ernest, and I feel that I owe you an apology for my conduct in not keeping you posted as to my whereabouts the past few days, as no doubt you would have been in camp with us on Lake George had you known I was there."

"Yes, Mr. Root, I had intended to join the party on Lake George, in company with you, as I had inferred, from what you and Mr. Larrabee had written me, you were to visit me sooner, and that I should have the pleasure of your company on the way to the camp. But instead, you went directly to the camp; and, as friend Larrabee expressed it in a recent letter, I was 'left in the soup.' But, as he reports a very enjoyable time, I will overlook it, and grant the pardon you ask. Now, Mr. Crane, let me put your horse in the barn, and we will have a visit all together. Let us go into the shop, as I suppose you will both prefer that to the house at present. Jennie will soon have tea ready, and then we will go in." So, into the shop we go, where we have a regular bee-convention.

"Now, Mr. Root, if you will tell me how many days you can stop with me I will plan a little in order to have you see as many of our Vermont bee-keepers and their apiaries as possible, for all are on tiptoe, and ready to spring at a moment's warning to give you a welcome."

"Thank you; you are very kind; but I must go to-morrow."

"What! go to-morrow?"

"Yes. I must be in Troy, N. Y., to-morrow night."

"Well, then, why under the sun didn't you stay at home? for surely this hurried flight through the State is far from satisfactory. How much more will you know about Vermont and her bee-keepers than you did before you came? Why, you must stay a week, *sure;* nothing short will be satisfactory to us; what say you, Mr. Crane?"

"Well, I am of your opinion, Mr. M.; but, just think; he stopped with me only a few hours; and if he stays with you until to-morrow afternoon you have no cause for complaint, as he assures me he *must* go."

"Very well, then, Mr. Crane; suppose you stay here all night, and we will make it 'warm' for the young Root before morning, as we will keep him up all night so as to make all we can of him while he stays."

"Really, it would be impossible for me to stay with this little girl," said Mr. Crane. "But I should like to, for I think the young man should be punished for not making us a longer visit. But my experience teaches me that *you* are pretty good at keeping your visitors up to a late hour, so I will risk you with him."

"Surely, gentlemen," said Ernest, "you are very considerate. I only wish I could remain a few days longer, but it is impossible."

"What is this you have here, Manum? This is something new, isn't it? I never saw any thing like it before. What do you use it for?" asked Mr. Crane.

"Why, Mr. Crane, is it possible that you do not take the papers? Why! this was illustrated, and its use explained, a year ago in GLEANINGS. It is my queen-nursery, and a useful thing it is too. There, you see one of these half-depth frames holds 16 of these little boxes; and by hanging a queen-cell in each and hanging the frame (nursery) in a colony, whether they have a laying queen or not, the cells will be kept warm, and the young queens will hatch as well as though they had not been removed from the combs. In this way I always have a quantity of virgin queens on hand; and since I have learned how to do it, I prefer to introduce virgins rather than laying queens. In fact, I have better success with them. I have introduced over 500 virgin queens this year, and I don't think I have lost over a dozen."

"Well, well!" exclaimed Mr. Crane; "why haven't I known of this before, Manum? Why haven't you told me about this thing before? I like it; it is the best thing of the kind I ever saw."

"Well, Mr. Crane, my answer is, Why don't you read GLEANINGS? and, furthermore, why don't you write for it? Again, why don't you come up and see me occasionally, as you used to years ago? I am the same Manum that I always was, only that I know less about bees than I used to in my own estimation."

"I see you have some of our excluding zinc here; how does it work?" said Ernest.

"Yes, I have enough for 65 hives; but it does not exclude the queens from the upper story, as I find that very many of my queens got up into the upper story this summer, so that really it is not safe to use it for the purpose of excluding queens."

"What is this used for?" asks Ernest.

"That is my section-gluer for putting four-piece sections together. A good smart hand will put together 1500 to 2000 per day with it."

"And what is this for?"

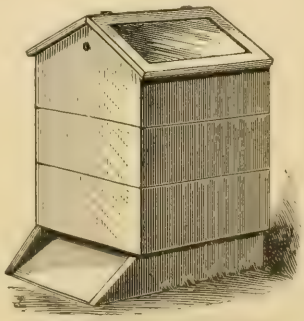
"That is a block with which I make my bee-escapes. This block has been in use over 15 years. You see it is simply an inch hole bored in this block of hard wood, and this is the "punch," made cone-shaped so it will fit the hole loosely. I now cut common window wire screen into three-inch-square pieces, lay a piece over the hole, and with the wood punch I press the screen into the hole which forms the escape, making it cone-shaped, and then with the point of my knife I cut two of the wires at the tip of the cone crosswise—thus, ×—and with an ordinary lead-pencil passed through the ×, the opening is made just the right size to allow one bee to pass through. Then I tack the escape over an inch hole at the gable ends of my hive-caps; and by placing my sections of honey under the caps, the bees will very soon pass out through the escapes and can not return."

"And here you have used these escapes over fifteen years, as well as many other (to me) new things which you have here, and have never told us of them. Now, Mr. M., why don't you mention these things and their use through GLEANINGS? It is these little useful things that we want; so hereafter, when you get up something new, please tell us all about it in your articles. They will interest some if not all who read GLEANINGS; and whenever you can, send us a photograph of them."

"Well, gentlemen, Jennie says, 'Tea is ready,' so let us go in and sample her cooking."

After tea Mr. Crane departs for home, and Ernest and Manum settle down for a good talk, and lay plans to make the most of the next day. I noticed all the evening that my friend Root was full to overflowing with thick top-bars and closed-end frames. Really, he did not seem to be interested in talking about any thing else; and I thought to myself, "This young Root has thick top-bars and closed-end frames well rooted within him; but to-morrow I will make an effort to root them out of him." So, having laid our plans for the morrow, we retired at a late hour.

"Good-morning, Mr. Root. The weather is rather unfavorable this morning for carrying out my plans, as you see it rains very hard. My intention was, since you must go to-day, to take you to Burlington, 25 miles from here, where you could take the 9 P. M. train for Troy; and on the way to Burlington I could show you four of my apiaries; then we would call on Mr. Eugene Cox, who has some 75 colonies; then next we would call on Mr. Fred Dean, who has 50 or more colonies; and then Mr. H. Stilson, with 140; and then Mr. W. H. Dodge, with his 200 or more colonies; hence you see I had planed to give you a lively time if it had been pleasant. But as it is we will just settle down and have a visit all by ourselves. I wish it would stop raining long enough so I could make a picture of you standing by my new hive hot-house; but as that is impossible, I will show you one I made a few days ago which I will give you to show to the readers of GLEANINGS if you care to reproduce it for that purpose. You will notice that it is simply one of my Bristol hives with a glass roof. I make a



MANUM'S HIVE HOT-HOUSE.

shallow box just the size of my brood-chamber, and put in about four inches of earth, sow my seeds, and place the box over a strong colony early in the spring, and then place this glass-roof cap over all; and the warmth from the bees at bottom, and the heat from the sun at the top, will cause the seeds to germinate very soon; and the warmth from the bees will prevent the plants from suffering on cold nights. In this way I can have as many hotbeds as I wish; and, furthermore, these hives may be used for solar wax-extractors. And now, Mr. Root, the hour has arrived for you to take your departure. The stage is coming for you. I am very sorry you can not make a longer stay; and here let me say, that, whenever any of the members of the Home of the Honey-bees wish to visit Vermont bee-keepers, you send an *older* person—one that can not *fly* so swiftly as you can—the veteran *A. I.*, for instance—that we may have a little more time to visit. Notwithstanding that, I have enjoyed *your* visit very much indeed; but when I am favored with agreeable company I like to keep it as long as I can." A. E. MANUM.

Bristol, Vt.

Most of the bee-keepers whom I visited felt that I was paying them a rather short visit; but I had planned, by getting copy ahead, etc., to be away for only one month. As I had to travel something over a thousand miles in all, and visit bee-keepers and friends all along the route, you can readily see that my time had to be put on rather short rations for each; and those bee-keepers who were situated on the latter end of the journey, I am sorry to say, got shorter visits than those I called on first.

I make this explanation, that the kind friends whom I visited, and others whom I may visit in the future, may know why I was in such a hurry. My trip in Vermont paid me well, and one day with you was a good deal better than nothing. I saw many things at your place that interested me. But I found along the route, that, when I visited a representative bee-keeper of the locality, I saw pretty much the same sort of bee-keeping within a radius of a hundred miles. You and Mr. Crane were representatives of your locality, and in a sense I saw a good deal of Vermont bee-keeping.

Now, really, about that queen-excluding zinc failing to accomplish its object. I am somewhat troubled about it. We had had reports that in exceptional cases the queen got through it; and you remember that Mr. McIntyre, of California, used these same boards with a good deal of satisfaction, while he admitted that occasionally a queen would get through. These reports, together with your own statement, influenced us to get a new set of dies; and now I am happy to state that they are made, and the perforations of the zinc are exactly $\frac{17}{100}$ of an inch—the size adopted by Dr. Tinker, and recommended by McIntyre. The old zinc we had (and which was sent you) measures about $\frac{18}{100}$—at least some of the perforations. As it was too large it is no more than fair that we offer to make the matter right in some way.

MEDICAL FACTS,

FROM A DOCTOR WHO DOCTORS WITHOUT VERY MUCH MEDICINE.

We, and I think a great many thousands of the readers of GLEANINGS, are thankful that it has such extra good "Roots" that branch out in so many interesting and important subjects for the good of the people, when the bees fail to store surplus honey for us. It used to be said, that the *love* of money is the root of all evil. That was when preachers drank whisky, and used tobacco, without thinking of roots, good, bad, or medicinal. I used to think, and am now of the same opinion, that the science of medicine, as taught and practiced sixty years ago, was the root of more evil, suffering, and death, than all other evils combined. The science of medicine was called "scientific ignorance;" and the practice, "murderous quackery."

A great many quit the practice of medicine after finding out that they were doing more harm than good. An old doctor of the "regular faculty" in Ohio told me that he did not know that he ever cured a patient, and said that he knew he had killed some, but not intentionally.

For many years I have admired the candor and honest acknowledgments of Dr. O. W. Holmes. When he said, "It were better for the people were all the medicine of the world cast into the sea," he meant medicine used by the regular faculty, such as he had been taught to use. I don't think he meant water, honey, and other domestic remedies.

An experienced regular doctor in Louisville, Ky., told me that the people would be better off without than with such medicines as he used; but he said he had to visit patients, and they would not be satisfied without medicine. No wonder that homeopathic patients get along so much better when the doctor gives little sugar pellets without any medicine.

A reverend doctor of divinity told me that he quit the regular practice of medicine because the medicine did more hurt than good, and he had to lie to his patients. He also said he thought it necessary to lie to patients, or it was *better* in many cases than medicine. Many years ago one of my comrades was sick with fever, and the regular doctor said he would die, as most of his fever patients did; but in the night, when the watcher was asleep in his chair, the patient, "burning up with fever," tongue and lips cracked open, "dying with thirst," reached the pail or pitcher of water and drank all he could. When the doctor came the next morning he was surprised to find his patient better—saved by nature's remedy, contrary to the doctor's science and murderous treatment. Thank the Lord, the doctors are progressing, using more common sense, and do not ruin as many constitutions as formerly. One of the professors in the Ohio Medical College, in Cincinnati, said to us (the students of four medical colleges) in one of his clinical lectures in the hospital, that an old woman's remedy had done more good than all the remedies in the materia medica. He also advised the use of warm water and vapor baths.

In North Carolina, at one time in 1865, I sent a requisition to Wilmington for medicine, and failed to get any. Surgeon Thomas, ex-professor in Keokuk, Iowa, Medical College, said he would go himself after medicine. When he came back he said there was none to be had. I told him that I was a radical botanic and hydropathist, and could prescribe better medicines that were right handy by than were furnished by the government.

It is recorded in history, that Surgeon Daniel Tyrrell was frequently called to visit other

surgeons' patients after it was known that such cases as were dying, day and night, under "old school" treatment, were getting well under his botanic (physio-medical) treatment. In Rome, Ga., in 1864, one doctor who belonged to the regular faculty lost seven patients in one night, and said to me that he thought four or five more of his patients would die before the next morning. He had only three wards and but few patients, while I had six large wards well filled with sick and wounded, and more being brought in from the field and field hospitals every few days, and I lost only one patient in over a month. The said regular had proclaimed with an oath that there ought to be a law to prevent all doctors practicing medicine who did not belong to the "regular faculty."

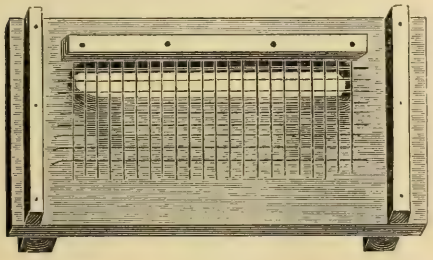
One fact more: I think I have saved many lives by giving enemas of lobelia in plenty of warm water, and frequent drinks of pleasant herb tea. If the regulars knew how to use lobelia for inflammation of the bowels, they might save such cases instead of letting them die with opium or morphine. The whole system can be relaxed, and inflammation in any part subdued with small but frequent doses of lobelia to stomach or bowels. The addition of lobelia is better for dysentery than clear hot water, which is good, "you know." D. TYRRELL, M. D.

Toulon, Ill., Oct. 8.

SAWYER'S BEE-ESCAPE.

A DIFFERENT PRINCIPLE.

I mail you to-day a model of my bee-escape. I have been using it the last two weeks, taking off comb honey from 76 stands of bees, with perfect satisfaction, not leaving more than three to ten bees in the supers, even when I raise two supers at a time.



To make the escape, cut a slot in the honey-board, 12 in. long and ⅝ wide, and bevel out one side. The wire cloth is to be cut 14 in. long and 2½ wide. One side and both ends are to be fringed ⅜ inch, the fringe coming over the beveled side of the slot. I use a honey-board ¼ in. thick, with a bee-space top and bottom. By having a thicker board, the escape could be made within it so as not to interfere with the bee-space, by cutting some of the wood away in the board. The slot in the board must be made in a line with the opening in the sections. I use the same honey-board for covering the brood-chamber and sections by closing the slot when not in use.

I am an A B C scholar, and have been reading GLEANINGS since 1885. I have been much interested in it, especially in Reese's and Dibbern's bee-escapes, as I have been anxious to get something that would work satisfactorily.

I should like to have you try it before the season is over; and if you think it is the best out, I should like you to supply brother bee-keepers with models at 30 cents for one and 50 for both, if you can at that price, and pay me what you think right. JAMES SAWYER.

Du Quoin, Ill., Sept. 17, 1890.

Friend S., something quite similar to the above has been in use for years, but it was not applied to a honey-board. I will explain to our readers, that the engraving does not show the edges of the wire cloth raveled out sufficiently. The bevel in the slot should reach to the edge of the fringe on the wire cloth; and the wire of which this wire cloth is made should be so light that the bee raises the end as it crawls out under it. I discarded a similar arrangement years ago, because the wires were so easily doubled up if any thing touched them. Now, it occurs to me, however, that a thin piece of wood or tin could be so placed as to protect these fringed ends from injury. Arrangements of this kind work positive; that is, a bee can, under no circumstances, get back after he is once pushed out under the points of the wires.

ERNEST'S NOTES OF TRAVEL AMONG THE BEE-KEEPERS OF YORK STATE.

ON THE CATSKILL MOUNTAINS.

After romping around Shady Glen (and it seemed to me that the parts of York State I visited were full of them) we rambled back to the hotel — brother Charles and I. Glancing back I noticed the whole front range of the Catskills—a most beautiful sight to me, as it was my first initiation to mountain scenery. There were several gentlemen at the hotel, who, I had been told, were discussing my bicycle trip of the day, and with doubtful heads agreed that it was impossible. To settle the matter, one of them was introduced to me. "Why," said he, "I have been driving all day with a good horse, and have gone only 30 miles; and here you say you went 45 miles in about five hours and a half."

"That is easy to explain," said I. "When *you* are going down hill you are obliged to walk the horse; and likewise in coming up the hills."

He assented.

"Now, then," continued I, "when *I* go down hill I coast"—that is, I let the bicycle out to almost its full speed if the road is not too rough; and I travel, I suppose, on an average, when going down hill, at the rate of about a mile in five minutes, and sometimes much faster. If there is another hill just ahead of me, with very little effort I can keep up the velocity acquired down; and the result is, I can ascend the next hill with very little effort. If it were not for friction, by the well-known law of mechanics I could ascend the next hill without trying at all. Now, then, I do not lose time in going up and down hill, as you do with a horse."

"Oh!" said my friend. "I see. It is all plain now."

By this time the supper-bell rang, and I think I managed to do ample justice, after the exhilarating ride. Not long after, Mrs. Root came back. She had received a letter from O. R. Coe, of Windham, N. Y., inviting us to visit him. It will be remembered that he has written occasionally for the journal. He owns between 200 and 300 colonies, and is also proprietor of one of the best hotels in the Catskills.

I was to wire Mr. Coe when we were ready to leave for Windham. Accordingly, after dinner the next day, I took the wheel for the village, three miles away. It looked somewhat like rain, but I thought I could get back before it actually began to storm; but, unfortunately, it poured and poured, when I had got just about half way. Hurrying as fast as I could, I forgot to observe the direction I was going, and I got on the wrong road, a couple of miles out of my way. Back I came through the mud and rain, dripping wet. In some places the hills were so steep that I had to dismount and plod along by the side of the wheel, with great clods of mud hanging to my low cloth bicycle shoes. I finally reached the village, sent the telegram, and started back. The roads began to dry off from the effects of a downpouring sun; and before long I was back at the hotel, pretty nearly as dry as when I started out, but somewhat muddy.

We were about to go in to supper when a mountain wagon drove up, bearing the name "Windham Hotel." A middle-aged man stepped out, whom I took to be Mr. Coe. Advancing toward me he said, "This is Ernest, I suppose?" I then introduced him to Mrs. Root and to my relatives, Mr. and Mrs. Bedell. As it was a little late, we took a lunch, fastened the bicycle on the wagon, and started on the road to climb an elevation of about 1200 feet for Windham, eight miles distant—a point in the heart of the Catskills. It was growing dark fast, and we did not see very much scenery that evening. In the meantime, Mr. Coe and myself talked bees as only two bee-men can. He has kept them for a good many years; but on account of difficulties in wintering he had lost about as much as he had put in. He could bring them through the winter well enough; but along in the spring he would invariably lose heavily from spring dwindling. He had tried all the best methods for wintering, both indoors and out, but he invariably encountered that dread malady along in April and May. The curious thing was, that, with all his modern improvements, box-hive men would carry through successfully their black bees. The result was, that, in order to carry on bee-keeping, he was obliged to buy from them, transfer, and start anew. I suggested that it might be that the black bees would winter better than his Italians. No, that could not be it, because he had tried in vain to winter black bees. "Why," said I, "why don't you leave them in your single-walled hives outdoors, as your box-hive friends do?"

"I did try that, and still they would die."

The facts were, he was about 1500 feet above the general level of the surrounding country. The winters are very cold and severe; the springs backward, and generally unfavorable to the bees. There is no doubt that Mr. Coe has conditions to combat against that many of us generally do not have. But there were those old box-hive bee-keepers—how is it that their bees, apparently neglected, came out all right in the spring? That was a conundrum that I, a supply-dealer, editor, and an advocate of modern improvements, could hardly answer, and I should be glad if any of our readers would solve it. Mr. Coe had as good a wintering repository as I have ever seen. He has practiced all the best methods, tried all the different ways of ventilation—done every thing, in fact, and yet the general result seemed to be the same in the spring.

On this ride Mr. Coe also explained his project of moving his bees to the alfalfa regions of the West. He would either move them this fall, or very early next spring, before spring dwindling had a chance to commence. He desired to know what I thought of it. I told him I thought it risky business. The alfalfa fields seem to be boundless in their resources for nectar, and he might make a big failure of it, or a big success. At best, moving bees so far is hazardous. To this he explained that he would lose them all anyhow, if he attempted to winter them at home, and he rather decided to accept the other horn of the dilemma—sending them to the alfalfa regions. He had some 500 hives filled with nice perfect combs on which the bees had died, the same carefully stowed away in his bee-house. This was capital lying idle, and he would never be able to use it or sell it *unless* he could move the same to a locality where he could both winter the bees and get paying crops of honey.

This was about the strain of our bee-talk on that pleasant evening ride; and ere long we ran up to a large four-story hotel, with accommodations, if I remember correctly, for about 60 guests. It was so dark that I did not recognize the place from the pictures I had seen of it; but that you may get a view of it, I will ask Mr. Coe to send an electrotype, that you may all see the place.

After being introduced to Mrs. Coe and to his son and daughter, we were conducted to our room; and the next morning, from the window there was revealed a beautiful view of the mountains in the rear of the hotel. What a lovely place, we thought! It would be delightful to stay here during the summer months—cool and bracing, even during the hottest weather; never any malaria, and always good sight-seeing!

OFF TOURING AMONG THE MOUNTAINS.

The evening before, Mr. Coe had told me that he was going to make up a party of two loads to drive among the mountains, the objective point being the Mountain House, and the now almost world-renowned Kaaterskill. The latter, I suppose, is one of the most magnificent and expensive structures for the accommodation of guests that was ever built. It was erected under circumstances which I will presently explain.

After an early breakfast, Mrs. Root and I, together with a party of several others, took seats in one of the mountain wagons. These wagons look very much like ordinary stages. They have three seats, each holding three persons, or nine in all. As I have before remarked, these mountain horses seemed capable of performing marvels in drawing these heavy loads. They have learned to economize their strength, and I suppose they will last about as long as the average horse on roads more level.

As we climbed into the wagon, Mr. Coe handed me an aneroid barometer, which he had purchased of A. I. Root, saying, "Here, you may carry that."

"What is it for?" said I.

"Why, it is to record elevation. You can tell at any point in your journey just how many feet you are above the surrounding level."

It then flashed through my mind that barometers are used for that very purpose.

"Now," said he, "notice where the pointer stands on the dial, for we are going to climb the mountains to-day."

Up, up, and up we went; and as we ascended, the little pointer on the dial recorded the number of feet we ascended in a perpendicular, until we were 1000 feet higher. What astonished me was, that several times when we appeared to be going down hill that dial showed that we were actually *ascending;* and sometimes it would behave the other way. It seemed to me that it did not know what it was about; but it was evidently correct.

At one point I remember Mr. Coe called out,

"Now, ladies and gentlemen, perhaps you would like to get out and walk a little, and get rested." After riding a good many miles we were glad to avail ourselves of this suggestion. On arriving at the top we were also glad to get in and ride down hill. Again the little aneroid barometer was consulted. Yes, down the hill the pointer indicated—300, and finally 500 feet lower. I noticed that, even for a few feet of the descent, it recorded it quite accurately.

I was curious to observe that some peaks appeared to be very much higher than others. Mr. Coe informed me that such a peak, pointing to one that seemed very much lower, was in reality 1000 feet *higher*. As we rode along, every once in a while a panorama of scenery would open up as a clear space between the trees gave us a view. The Catskills, unlike the Rockies (the latter are the result of upheavals), were made by glaciers; and by intently looking at the rocks, and the peculiar formation of the valleys, as well as the shape of certain peaks, this explanation seemed to be very reasonable. It seemed funny to think that this rugged and mountainous country might at one time, before the advent of the glaciers, have been level, like our own State of Ohio. Just how long ago that was, etc., I will leave to the geologist.

AT THE MOUNTAIN HOUSE.

We went through two or three little villages that seemed to be sustained largely by pleasure-seekers during the summer; and finally we were told that we were in the vicinity of the Mountain House and the Kaaterskill Hotel, and presently we were in the rear of the former. After stepping out of the wagons, our party passed through the long hallway, then out into the front, on to a large table rock. Here we were, something over 2000 feet above the valley of the Hudson River, overlooking an immense cliff—a veritable balloon view it was indeed. Two thousand feet down—what a sight! maplike, here a village and there a village, and the roadways winding hither and yon. The country beneath seemed to be perfectly flat; but I was told that it was quite hilly. Twelve miles distant (it did not seem half that far) was the Hudson River. Mr. Coe handed us a field-glass. Off in the distance the day boat from Albany was seen going down the river to New York city. Further on were some of the mountains in Vermont. In all my boyhood days I have always desired the privilege of a balloon view, that I might look down upon the country, and view its maplike appearance; and here I was with this aspiration fully realized, but without the attendant dangers of aerial navigation.

Our next point was the celebrated Kaaterskill. Just as we were about to leave I noticed a young lady and her beau. Like many another gallant suitor, he essayed to climb down a ledge of the cliff a little way to pluck a little mountain rose that the girl admired and expressed a wish for. As he clung nervously to a little niche of the rock I fairly held my breath for fear he would lose his scanty hold and be precipitated a thousand feet below. If he had performed this feat to rescue a little child, I would have taken off my hat in admiration. As it was, I thought, "What a poor silly fool he was, just to gratify a mere whim and fancy of a girl, who could not have loved him much!"

Through a winding and narrow path we clambered from one ledge of rock to another, till that magnificent hotel, the Kaaterskill, came into sight—a structure that had cost over a million of dollars, and its origin was—what do you think?—a chicken. "Oh, yes!" said I; "we want to hear

THAT CHICKEN STORY."

To this Mr. Coe readily responded. A certain rich man, before the Kaaterskill was constructed, together with his family, was in the habit of spending his summers at the Mountain House. He was a very successful lawyer, and *immensely* wealthy; and whenever he went "outing," he wanted the best that money could buy. One day, while at the Mountain House, his daughter at dinner called for chicken. The waiter replied that they hadn't any that day; and the proprietor, when appealed to, settled the matter by saying that they would not go to the trouble of cooking *just one*—not even for the Queen of England, much less for the daughter of lawyer ——. Much aggrieved and insulted, as she thought, she related the circumstances to her father, and he likewise became angry, and had some words with the proprietor of the Mountain House. The result of it was, we are told that he took a stroll among the mountains that afternoon. He selected a spot upon which to build a hotel that would leave the Mountain House and every thing like it far in the shade. He purchased a large tract of mountain country; and although it was still late, he announced that, before another season, he would have a hotel up and ready for the occupancy of guests. There was no railroad there then; and during the bitter winter, workmen nearly 3000 feet above the level of the Hudson Valley, constructed what is now known as the Kaaterskill Hotel. Timbers, etc., were hauled up by wagons, at an enormous expense, and carpenters had to be paid double wages, in order to be induced to work in such bitter cold. The result was, the building was constructed and ready on time.

I do not remember exactly now, but I think their rates were from twenty to forty dollars a week. Single articles that cost in most places 5 cents were sold for 25. The wealth of New York city pours in, and seems to delight in paying 25 cents for something that ordinarily costs only 5. I believe it was only during the past season that the hotel was made to pay expenses. I was told that enormous quantities of leavings from the table are wasted. For instance, if a leg or wing of a turkey is cut off and not used for a certain meal, turkey and all is thrown away. This may be exaggeration; but there is no doubt that there is an enormous amount of stuff wasted.

The proprietor of the Kaaterskill, when he built this hotel, did so with the intention of running out the proprietor of the Mountain House. He would have every thing so magnificent in its appointments that no one would patronize his rival; but the result showed, as it *does every time*, that his rival did a bigger business than he ever did before. The manner in which the Kaaterskill was advertised and boomed drew people. Those of more moderate means, instead of patronizing it, went to the Mountain House.

A DOG STORY; HIS FLYING LEAP OVER THE FALLS.

After getting our party together we started our again for another point—the Kaaterskill Falls. The funny thing about it is, that they are, to a certain extent, artificial. They dam the water up at the height of 1500 feet, and when a lot of people are there to look on they open the gate and let the water fall, and thousands of people go to see it. We then clambered down and down, until we were half way down the gorge. We waited and waited for the water to fall. A small quantity was running over, but we waited in vain for a big onslaught. There had been so many visitors that day, that they had used up all the water. While we stood down by the bottom looking up, Mr. Coe told us of a little incident. The owner of a handsome and valuable dog had left his animal at the top

of the cliff, overlooking the falls. The man had gone down the same path that we had; and on looking up he saw his dog. He called to him; and the faithful animal, in obedience to what he supposed was his master's wish, and having entire faith that he would ask him to do nothing that would be to his peril, leaped from the height and was dashed to pieces on the rocks below, greatly to the consternation of the owner, and all who witnessed the affair. As we passed up the pathway there was a stone, and on it was a little epitaph telling the circumstances.

After taking in a few more objects of interest, which I have not now time to mention, we started for the hotel, which we reached toward evening.

[*To be continued.*]

ANOTHER LARGE ARTESIAN WELL.

THIS TIME AT A PLACE WHERE IT WAS GREATLY NEEDED.

Friend Root:—This (Indian) agency has been located on these grounds, 2½ miles from the Missouri River, 20 or more years. It is situated on the bluff overlooking the river bottom. The muddy river, the sewer into which every thing in a large area of the Northwest drains, has been the only sure water supply for the agency during all these years. Wells have been sunk in various places 80 or more feet deep, without becoming profitable. Cisterns have been completed at the residences all over the village, but it does not rain enough here to fill them, and people have been compelled to buy water, hauled from the river at the rate of 35 cents per barrel. All the Indian agents have tried so hard to save money for the government, and thus increase their popularity in Washington, that they feared to ask for authority and funds with which to drill an artesian well, until during the last (official) days of Major Hill, when the necessary provision was made, and we now have a magnificent flow of water through a six-inch pipe, the lower end of which is 700 feet below the surface. The water has a pressure of 95 lbs. to the square inch; and when allowed to escape through a 1¼-inch hole in a cap screwed on top of the pipe, it is forced upward through a stiff breeze and lost in spray, in which the prettiest rainbows sometimes appear, 70 and 80 feet above the earth. More than 100,000 barrels flow each 24 hours.

This well was drilled through a sort of blue slate and sandstone most of its depth. When about 640 feet down, the sandstone was reached; and in it was found a little water. This water-bearing substance was reached at midnight, when all the people of the village were at rest. The machinery was promptly stopped, and the government bell was tolled until nearly everybody knew that water had been found. The pipe was next extended to the bottom of the hole, when the drill was started again. The porous, sandy substance into which the drill, weighing three-quarters of a ton, was plunged, yielded readily, and with every stroke the volume of water was increased, and so was its pressure, until the honeycombed sandstone was passed through, and the drill was suspended in the mysterious underground body of water. As the drill passed out of the sandstone, the water was full of snow-white sand, fine and sharp; and just here came up about half a gallon of charred wood. It was almost coal. I send you a sample by this mail.

Many water-courses in the United States, which are called creeks, and which furnish power for the movement of flouring-mills and other machinery, do not afford as much water as is forced through this six-inch pipe. The water is as clear as crystal, and is the "hardest" water I ever saw. It is so hard that it is almost bitter. It can not be used for laundry purposes without first having been subjected to the reaction of chemicals.

There are many artesian wells in this part of the country, and many more are needed. It is believed that the same body of water furnishes the supply for all the wells near.

W. McKay Dougan.

Santee Agency, Neb., Oct. 10, 1890.

Thanks, friend D. Why not utilize these wells for driving machinery? After the force of the water is spent it will be worth just as much for irrigation. Below is something more in regard to the artesian well which we pictured in our Oct. 1st issue:

I was somewhat surprised to see the artesian well in Gleanings. It is a good picture. You ask how deep they have to go for the artesian wells. There are eight between here and Woonsocket, and I believe the shallowest one is 600 ft., and they strike them all the way to 1000. There is no trouble in finding them anywhere in the James River Valley, which is about 100 miles wide; and all up and down the the river they are trying for one. In Madison they are down 720 ft. now. J. W. Chapin.

Winfred, S. Dak., Oct. 14.

There, friend C., that is just about what I expected—that is, that the whole region round about there would be tested, and this wonderful vein of water fully developed. Now, I am a great fellow to ask questions. What occurs to me just now is this: In the oil-fields they drill a great many dry wells—that is, wells that give nothing, and at the same time a vein may be struck giving a wonderful flow with these dry wells all around it. Is it so with artesian wells? My impression is, that, where this enormous pressure exists, the water would rise pretty much the same way anywhere in the vicinity, by going the same depth. If I understand you, there is a track 100 miles wide and of indefinite length, where artesian wells are found almost invariably, by boring deep enough.

GOVERNMENT IMPORTING BEES.

A VALUABLE SUGGESTION.

Mr. Editor:—You are aware that we have received great advantage from the discovery and importation of superior bees into America. Possibly there are bees in Africa, India, Ceylon, Philippine Islands, etc., that are superior to our present bees—even to Italians, Syrians, or Carniolans. We should at least know whether there are such bees, and should have a chance to test them. I have had some communication with government officials, and I believe that, if bee-keepers will move in the matter, we can secure such bees, and at no expense to the bee-keepers, and at slight expense to the government. It is certainly an enterprise worthy a trial.

It is suggested to me, that, if the bee-keepers will memorialize the government, through the secretary of agriculture, it will help to secure the object desired. Please bring the matter up in Gleanings for Nov. 1, which I hope may be out prior to the Keokuk meeting, so the bee-

keepers may have opportunity to consider it before it is brought up. I have written to the president, asking him to present the matter. The Central Michigan Association passed resolutions respecting the matter at their meeting yesterday. I shall also bring the matter up at our State meeting, at Detroit, Jan 1, 1891. This is certainly just the kind of work that government can and ought to do. I hope other States will also resolve and send resolutions to Secretary Rusk. If we all move it will be done.

A. J. Cook.

Agricultural College, Mich., Oct. 17.

Well, friend C., if there be any better race of bees on the face of the earth than those we have already, we want them, sure. Friends Jones and Benton, however, seem to have decided pretty well that there is nothing much superior to Italians. Our missionaries in foreign fields will be great aids in this matter.

RAMBLE NO. 31.

JAPANESE BUCKWHEAT IN WESTERN NEW YORK.

We found in many of the counties in Western New York, that farmers were generally sowing Japanese buckwheat, and were giving it a high recommendation, both as to productiveness and quantity and quality of the flour. It was being introduced largely in localities where but little buckwheat had been previously sown, and bee-keepers were accordingly rejoicing at the prospect of a fall yield of honey where they had none before. But in Chemung Co. we heard the first adverse report. An old farmer with whom we were riding said it might yield well, but a bushel of it did not produce as much flour as a bushel of the old kind, and he shouldn't sow any more of it; but further inquiry revealed the fact that the mill was to blame. The huller, we believe, would not allow the large kernels to go through; but with a proper apparatus, which had to be used on the new buckwheat, it was as productive of flour as of seed. We presume, however, that this old man and some of his neighbors will refuse to be benefited by the new-fangled grain. Japanese buckwheat has evidently come to stay until something better is found.

From Chemung we pass into Schuyler Co., in which is located Watkins Glen, famous for its wild scenery, and a place of summer resort. We greatly desired to feast our eyes on the actual features of the glen we had so often seen in photographs; but heavy freshets had recently been making sport with bridges, stairs, and ladders, and a general cleaning-out was the result, and the Rambler had to content himself by merely seeing where the glen was located, and imagining the rest.

The waters that come rushing down through these rocky clefts soon find a peaceful resting-place in the bosom of Seneca Lake, another of those beautiful sheets of water found in Western New York. One characteristic of this lake is its freedom from freezing. Its surface is scarcely ever covered with ice. On both sides of the lake are fertile farms. Vineyards are becoming quite numerous, and small fruits of all kinds are largely grown. Black caps were taking preference as a berry. What can not be sold fresh from the bushes, are put through the evaporator.

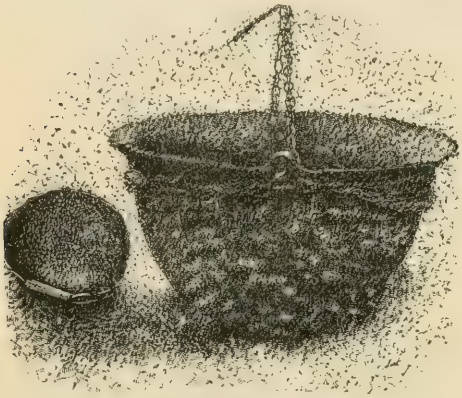
RENDERING WAX ON A LARGE SCALE.

On the line of our travels through Chemung and adjoining counties we found but little interest in bees. Our cousin Nat, however, had a friend who was quite an extensive bee-keeper, having 250 colonies, and who had lost about 100, and didn't want his name to appear in print; but as he was getting out beeswax on a scale never before witnessed by the Rambler, he had no objection to our describing his method.

MELTING AND PRESSING BEESWAX.

About 1400 combs had been cut from the frames, and were piled up in the cellar. The oldest and most uneven had been weeded out, and were ready for operations. A large iron kettle, of over forty gallons capacity, was hung to a stout pole and crotched sticks with a log chain, and a rousing fire started. Two hundred combs, about the size of an L. comb, were gradually put into the kettle. In less than an hour the mass was seething and foaming in fine style. With a hoe, our bee-man kept agitating it until every lump was melted. Near the kettle was a press after the pattern of A. C. Hatch's, page 492, 1889, only a little more so. The forms of this press were perforated all around, and were left on to supplant the burlap. The contents of the kettle were transferred to the forms, and built up in cider-press style, with racks between the forms. Pressure was then applied with a common bench-screw; and, how the wax did hasten out! The hot liquid was run into a deep wooden tank; and, when nearly full, a plug was withdrawn from the bottom, and the water drawn off. When no more liquid would run from the press, and the water drawn from the bottom, the pure wax was run into square wooden boxes, making cakes of about 50 lbs., and nice shape to ship. Four runs could be easily made in a day, as our modest friend termed it, and over 200 lbs. of wax rendered; 3¾ combs would render out a pound of wax, and the dross seemed to be entirely free from wax. Our friend was enthusiastic over the rapidity of the big-kettle plan, and regarded steam and solar extractors as mere toys. "Then," said he, "I have learned something about the nature of the waste. I had a big pile of four of five bushels; and after it became dry I happened to put a chunk in the fire, and it burned a long time. I then raked the whole pile into the fire, and, how it did burn! It kept burning nearly all day. At night it looked like a pile of white ashes, and I supposed it was burned out. Five days after, I noticed the pile again, and it was much smaller; and upon thrusting a stick into it, the center was still live coals. That night, rain put it out. Had it not been for the rain it would have kept fire several days more. Then," said he, "Mr. Rambler, I find this big kettle makes a splendid outdoor feeder. I put in 200 or 300 lbs. of honey or syrup, and put a moder-

ate layer of grass on top; and, just see how the bees will go for it! Why, sir, it is inspiring. Every hive is represented in working up the



KETTLE OUTDOOR FEEDER.

bonanza; and after they get settled down to bnsiness there is no effort to rob other hives; and when they get through, all is quiet again. They get away with a power of feed in a day."

We hope the photo will give a realizing idea of the scene. When promiscuous or general feeding is desired, our friend's plan will doubtless recommend itself to the fraternity as well as to the RAMBLER.

You are right, friend R. Japanese buckwheat seems to be all the rage among the farmers and bee-keepers in New York State. Wherever I visited, and from whatever sources I could gather, the yield, both in size of grain and quantity, has been so superior that next year they will raise nothing else.

Say, didn't your cousin's friend have more or less trouble with robbers entering in and around the kettle of melting wax? In our apiary we would have a scene very much like the one shown, where the bees are being fed as above. It would not matter very much whether it was melted wax or syrup—there would be a perfect hubbub and uproar; but perhaps he does it on a cool or rainy day when the bees would not fly very much any way. Almost all our wax-melting has to be done on such days.

FIXED FRAMES.

A DEMAND FOR SOMETHING THAT CAN BE USED ON OLD FRAMES.

It seems we are feeling around for some kind of a spacer arrangement for our frames. We are beating about the bush for something new, while I suppose we have the very thing we are looking for, if we would only lay our prejudice aside and use it. Any thing which will space the top-bars only will not do, for the whole frame must be rigidly fixed if exact spacing is necessary. I am inclined to think some kind of a closed-end-bar frame, or the Hoffman frame, or something on that order, is about the only thing that will entirely fill the bill. I hope you veterans will throw away all your prejudice, and give us something in that line that we can change to without too much cost.

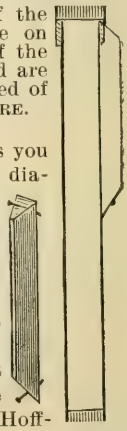
A great many of us are using your Simplicity hive, frame, extractor, surplus arrangements, etc.; and while we might gradually change our frames, yet we can't very well change every thing.

Ernest's notes are eye-openers to many of us. I wish some of our friends who use closed-end frames would write and give us their advantages. I think we have heard of their disadvantages. J. H. HILL.

Venice, Fla., Sept. 29.

We are very glad to inform you that we have something for just such bee-keepers as yourself, and you form a very large class. The following will just about hit you:

A CHEAP WAY OF MAKING THE HOFFMAN FRAME OUT OF FRAMES ALREADY IN USE.



Here is another modification of the Hoffman frame. Tack one piece on each end-bar, on opposite sides of the frame. They don't cost much, and are easily taken off when you get tired of spacers. J. F. MCINTYRE.

Fillmore, Cal., Sept. 12.

The idea is not entirely new, as you will find it already mentioned and diagramed on page 425 of current volume. There is this difference: You would use it wedge-shaped and beveled at the top as well as at the bottom. In my *opinion* it is the best spacer for the hanging frames *already in use.* It is very cheap, and can be easily discarded if not justified by tests. It should be understood that this is not a real Hoffman, because the top-bar is not widened out at the ends. This latter the inventor regards as a very important feature. So if you discard the one above illustrated, it does not necessarily signify that you would the Hoffman, for a similar reason. E. R.

HONEY CANDYING.

POLLEN ON THE BEES' BACKS.

In your foot-notes to friend Cleveland's article, page 714, you say that certain kinds of nectar will candy very soon after being gathered. My experience, running through several years, is that *any* kind of nectar will granulate under certain conditions. Friend C. says that lots of his made sugar before being capped over. My honey did the same thing, but not till we had cool wet weather. In 1885 it was wet and cool pretty much all summer, and the honey would granulate as fast as the bees gathered it. This is my reason for saying that all kinds of honey will granulate. If the weather is warm and dry while being gathered, and remains so till it is thoroughly ripened and sealed, in my opinion it will rarely ever candy. I do not remember having ever seen any sourwood honey granulated. I wonder if it is not owing to the acid nature of the tree. The aster honey will granulate as soon as extracted, owing, I suppose, to the cool fall weather in which it is gathered.

As to pollen on the backs of the bees, it is peculiar here only to the cotton-bloom. We know when cotton honey is coming in, by the yellow dusty appearance of the bees' backs. I think this is appropriated by the hive bees, as it is gone from the bees' backs when they come out

for another trip. This accumulation on the back is accidental, of course, as it is not the proper place to carry pollen. Bees are wise creatures, and take advantage of circumstances to advance their ends. A. L. BEACH.
Pineville, N. C., Oct. 11.

Friend B., your suggestion is something I have not thought of before. You may be right; and since you have turned our attention to it, our readers can doubtless give us facts enough to decide the matter pretty soon. If it be true, the present season should be a very bad one for liquid honey. We still have customers who insist on returning honey as soon as it candies, and no amount of explanation helps the matter. Such people will have to have a grade of honey like the California sage, that does not candy.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 171. *Is a queen at her best in her first or second year?*

Yes, both.
Ohio. N. W. A. B. MASON.

In her first full season of egg-laying.
Illinois. N. C. J. A. GREEN.

Her first full season averages the best with us.
New York. C. P. H. ELWOOD.

In her second year, to the best of my judgment.
Ohio. S. W. C. F. MUTH.

If hatched in July or August, her next season is her best.
Vermont. N. W. A. E. MANUM.

I should say they average equally well both years.
California. S. R. WILKIN.

I should think the first season after her first winter.
Wisconsin. S. W. E. FRANCE.

I doubt whether there is any difference, but I may be mistaken.
Illinois. N. C. C. MILLER.

First, always. They may, and usually do, last two years.
Michigan. C. A. J. COOK.

Generally, good queens are as good the second and third year as the first.
Illinois. N. W. DADANT & SON.

I consider the first year of the queen's life the most valuable, all things considered.
Ohio. N. W. H. R. BOARDMAN.

I rather incline to the opinion that a very early qeen is at her best the first season; but I do not feel much confidence about the matter.
Ohio. N. W. E. E. HASTY.

That depends. I have had queens that were at their best when two months old, and others when three years old. It is needless for me to say that the latter were the most profitable queens to have.
New York. C. G. M. DOOLITTLE.

I do not know. She is just as good as she can be both years, if her surroundings are favorable; and I have had them do a business the third and even the fourth year, of which I was proud.
Michigan. S. W. JAMES HEDDON.

I have not conducted experiments carefully and painstaking enough to answer this query as it should be; but I think that, if given my choice when buying bees, I should take colonies with queens one year old in preference to those that were older.
Wisconsin. S. W. S. I. FREEBORN.

In her second year. A man with good constitution may live to fourscore or upward, and he is in his prime from 40 to 50. A good horse, well taken care of, may live to be 30, and be in its prime from 12 to 15. The history of race-horses proves this. A good queen may live four years. She is in her prime in the second year.
Illinois. N. W. C. MRS. L. HARRISON.

I should say, in the second year. I have also had queens do wonderful things in the third year. I think this point as to the value of a queen is not fully settled. Many queens will do equally well for three seasons; others will be superseded in one, and both bred under the most favorable circumstances.
New York. E. RAMBLER.

Well, friends, I am not very much surprised at the diverse answers. I have at different times decided in favor of the first year, and then, again, in favor of the second. For some purposes a young queen may be preferable; and perhaps the great popularity of the untested queens has come from the fact that, if they are honestly reared, they are always young; therefore the purchaser has a right to expect at least two years of service. Quite a few of our customers have expressed a preference for the untested, even if offered at the same price as the tested, because the latter is usually an older queen than the untested. My impression is, that most queens begin to fail during the second summer. At the same time, it is true that we have queens occasionally that seem to be worth just as much during the third summer.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

CHICKENS AND BEES MUTUAL ENEMIES; HOW HENS TELL DRONES FROM WORKERS.

Friend Root:—In GLEANINGS for Oct. 1, page 707, you say that you have never known bees to sting chickens. I had seven colonies become queenless. Six of these were inside the chicken-yard, and only one outside. I lay the cause of losing so many queens, to the chickens. My wife blames the bees for the loss of so many of her little chicks. The bees not only stung the little chaps, but they also tried hard to sting the old ones. They did not succeed very well, as too many feathers were in the way. The hens do not appreciate the attack very much, I judge, from the way they fly around to get rid of them. They finally locate the bee on them, pick it off quickly, and in most cases the result is a dead bee, and they then proceed to eat it; but before they do that they pick it pretty thoroughly. Now, these hens are very cute in

the drone season. They have learned to distinguish between drones and workers. They will take their stand close to and at one side of the entrance of the hive; and when the drone emerges from the hive, and takes wing, the chickens take him in while he is on the wing, and that is the last of him; and when the workers get a little too thick around them they retreat to the back part of the hive, and further if pursued by the bees. In a very short time they are back again, take in another drone, and get back out of the way. All these performances I have seen. I have thought it is a good thing to keep chickens in the bee-yard to pick up all kinds of bugs, and to keep grass and weeds down, which they effectually do. Nothing green grows there except trees and grapevines; but if these chickens are guilty of killing and eating queens when going out or coming in from their wedding-tour, we shall have to separate them. A. W. AUSENBAUM.

Grant Park, Ill., Oct. 8.

Well, friend A., having chickens taught to pick out the drones is a good idea. Why are they not cheaper than drone-traps?

SOFT WATER VERSUS HARD WATER FOR BEES.

I see by your answer, p. 713, I was not explicit enough about the bees and the well. The water is soft—the only well of soft water in the town. I have a well of hard water right near the bees, and have kept water in a trough all the time. The neighbors emptied their trough, and the bees went into the pump and were pumped up by the handful. During the dry season they went there by the thousands. They stung the stock and the people going to the well. The owner thinks I ought to move my bees. I never tried fixing a place with pebbles and moss. I will try it. JOHN BURR.

Braceville, Ill., Oct. 5.

Well, friend B., you have given us a new idea —that bees prefer soft water to hard; but even if they do, I think it is a compliment to their good sense and taste. But you have struck on something else that interests me: Why should this one well be soft and all the rest hard? Is it not because it was drilled deeper? If so, perhaps some of the rest of you had better go down to this same soft-water-bearing stratum.

SUCCESSFUL BEE-HUNTING; 5 BEE-TREES AND 100 LBS. OF HONEY.

One week ago, after dinner I took a notion to cut a bee-tree, without veil or smoker. A neighbor, Mr. Richardson, said he would smoke them while I did the chopping and took honey. I cut the tree, and was opening the same, and bees were fighting like mad, when, who should come but the mail-man with the veil and smoker I had ordered. As the tree was on the road, I filled the smoker and put on the veil with much pleasure. I expected to get very little honey, but we took 38 lbs. of as nice honey as usually comes out of a frame hive. The Monday following I cut another and got 20 lbs. of fair honey. I have now got 5 colonies, all in good frame hives made by myself. First swarm are hybrids, some of them are beauties. The queen is a beauty. She must have come from Mr. Adam Bradford's, a patron of yours, some 12 to 14 miles from here, as he is the only one having any station in this section. Blacks are the rule here. Some 30 days ago a man seven or eight miles from me had found 39 bee-trees; another, 15; Mr. Winslow, 4; Mr. Kennedy and Roberts, one or two; myself, 5. The woods are full of them. Out of the five trees I think we took over 100 lbs. of honey. I am much pleased with the tools and GLEANINGS, as I am a Buckeye myself. M. R. SCUDDER.

Grandview Ranch, Tex., Oct. 4, 1890.

Why friend S., you must have a wonderful locality for bees. I am very glad your smoker and veil came to hand so opportunely.

ITALIANS AHEAD FOR WINTERING AND HONEY.

The past winter developed a point of superiority in Italian bees that was not known to me previously in wintering in chaff-protected hives. During the changeable and warm weather they remained clustered quietly, and so consumed less honey, and in the spring were well supplied with honey, while hybrids had to be fed, and many of my neighbors' black bees starved. Our season has not been very good. The Italians are far ahead of the blacks, though, and give 40 lbs. per colony of white honey as against nothing from blacks, and the fall crop yet to extract.

Payson, Ill., Sept. 17. D. E. ROBBINS.

Your testimony is like hundreds of others we have received. Where we receive one report where the blacks did better, we receive ten others for the Italian superiority.

THE SUFFERING IN IRELAND.

Dear Sir:—You state in GLEANINGS, that you gave twenty-five hundred dollars to help a railroad. What will you give, and what effort will you use to induce others to give from that which God has permitted them to retain for their own comfort, to keep the people of Ireland from suffering the misery of starvation? I trust we shall hear from you in this matter.

Oct. 13. A SUBSCRIBER.

My good friend, there are a few things in the above that I wish to take exceptions to. The first is, you do not sign your name. You may not have so intended, but there *seems* to be a disposition to find fault, and perhaps to question a little my Christianity. But why in the world do you not stand up and speak out like a man, and let folks know who you are? Sending a communication to an editor or anybody else (without giving at least the *editor* your name) seems to me like throwing a stone and then dodging behind a tree instead of letting your opponent see who it is that takes exception to your course of action. Many people, however, send anonymous letters, without thinking; but no true man or woman ever ought, under any circumstances, to be guilty of such an act. I wish it might be done away with. Again, you say that I gave *twenty-five hundred dollars* to help the railroad. In one sense this is true; but as you put it, I think it conveys a wrong impression. Until the present day we have been at the mercy of a single railroad line. This line moves freight only twice a day; and where goods are urgently needed, if they fail to go by the morning train they must lie in the depot, even if the consignee is suffering, *a whole day*. Another thing, we have never had an *east and west* railroad. All our goods have been going either north or south, until they could find some east and west line. Now, the money I have agreed to pay is not only to help the railroad, but still more to help *you* and all

the other friends who favor us with their orders. I subscribed the amount mentioned, because I felt it was a just debt I owed to those who gave me their patronage.

Now, then, for our neighbors across the water. As the writer of the above has not told us how to give, I shall have to ask some reader of GLEANINGS to give us the address of an organized society or company who will take our money and send it quickly and safely to those who are suffering. I am sure the GLEANINGS family will do their part. If there is a subscription being raised in your community, hand over yours, and do not wait for GLEANINGS. I asked a friend how it was that Queen Victoria did not bestir herself to supply the suffering of her subjects. We all know that the British Isles are abundantly able, if any nation on the earth is. The reply was, that the wealthy landholders were, on the contrary, turning the poorer classes *out of doors* because they could not pay their rent. I really hope that somebody may be able to tell us that this is not so. As GLEANINGS goes to both England and Ireland, some of the good friends there can, without question, enlighten us. Will the editors of our English bee-journals tell us about it, and tell us where to take hold and help? With the means of communication, and facilities for transportation, there ought not to be any *starving human beings* anywhere on the face of the earth. After dictating the above, our shorthand writer gives the following figures, which may have some bearing on the matter. They were used on large posters here during a temperance campaign. But even if this be true, the women and children ought not to be allowed to suffer.

During the Irish famine of 1878, $6,000,000 was sent to her relief from other nations; but during this same year the whisky-bill of Ireland was $42,000,000.

Add to this amount the sum paid for tobacco, which is almost universally used by the Irish, and it is not much wonder that some people feel like saying to her as Hercules said to the man whose wagon was stuck in the mud: "Put your own shoulder to the wheel first, and then I shall know better how to help you myself."

SLATTED HONEY-BOARD A NUISANCE: THE QUEEN-EXCLUDING BOARD A SUCCESS.

The honey season was better here. I got almost 500 lbs. extracted honey from my eleven best hives. Your slatted honey-board is a nuisance for extracted honey down here. Brood gets scattered all over the hive. The queen-excluding zinc honey-board, however, works like a charm. It keeps the queen down, and then the bees make the combs much thicker, so that I have only 8 frames in the upper story of regular Simplicity bodies. This saves bees the trouble of capping, and me that of uncapping two frames to the hive.

TO PREVENT BRACE-COMBS.

I tacked inch-wide strips of tin on both sides of top-bar, level with the same on top. This proved an entire success—not one bit of brace-comb. I also tried the double top-bar with the same result, only the latter is more troublesome to make.

BEE-ESCAPES; THE REGULAR CONE THE BEST.

I tried both the horizontal and the regular cone bee-escape; but instead of using them in boards I fastened them to a piece of enamel cloth, wide enough to project over the sides of the hive, enamel side down. They worked best when I did not fill the new upper story with empty comb, but put only one or two combs on each side. Wherever I put in the whole set of empty combs it seems the bees formed a cluster above and below the escape instead of moving downward. Of the two bee-escapes, the regular cone worked to better advantage than the horizontal. I never tried to extract before I had left the escape on a night. Whenever there was any brood in the upper story (which was invariably the case until I kicked out your slatted honey-boards), the escape did not work at all. When there was no brood they worked to my satisfaction, only very few bees remaining, which soon found home from the extracting-room. J. C. RIEGER.

Brenham, Tex., Aug. 18, 1890.

GETTING BEES TO TAKE DOWN THE HONEY: MASON FRUIT-JARS FOR FEEDERS.

Your answer to W. R. Tate, page 716, is different from what my answer would be. I would put on an empty upper story, then another upper story on top of that one, with combs uncapped in it; and if the bees are in need of stores they will carry it down immediately. I know this by practical experience. I have been feeding quite a good deal that way lately; and another way I am feeding extracted honey is, to put the honey into quart cans and leave the tops partly screwed on, and lay it in an empty upper story, on its side, and the honey will run out about as fast as the bees will take it. This is a very easy, cheap, and clean way to feed.

M. F. BACHELDER.

Alamo, Mich., Oct. 6, 1890.

You are doubtless right, friend B. Our remarks applied to the two-story chaff hive which we have been trying in that way. You can't tier the two-story chaff hive to three stories high. The idea of using ordinary Mason fruit-cans for feeders is good, and will save to many of our readers the expense of special feeders.

SOUR SMELL PROCEEDING FROM THE HIVE.

Can you tell me why there is a sour smell from some of my hives, something like the odor of soured honey? The colonies from which it comes seems healthy, and the odor is not apparent when the hive is opened. The apiary is on a side hill, and well drained.

Oronoque, Conn., Oct. 2. F. W. HUMPHRY.

Friend H., the smell you mention probably proceeds from a certain kind of fall flower. The matter has come up several times in past seasons, and, if I remember correctly, a certain kind of aster gives off this aroma when freshly gathered. It will entirely disappear when honey is well ripened, and you need have no apprehension in regard to it.

THE OUTSIDE WINTERING SHELL FOR THE DOVETAILED HIVE.

I wintered two nuclei of about three or three and a half frames each, in 8-frame Dovetailed hives, by making an outside shell all around the hive, with a four-inch space at the sides and

ends, and about 8 on top, filled with dry pine sawdust. In May I bought a colony of about 7 or 8 frames, with queen, and lost a good many in transferring. E. P. CRANSTON.

Keating, Ore., Sept. 25, 1890.

Friend C., you can succeed, ordinarily, with even three or four frame nuclei, where packed as you suggest. But should you undertake to winter weak colonies in this way on a large scale, you would probably lose a good many where we have a winter of ordinary severity.

FEEDING BACK; ONE WHO HAS PRACTICED IT 12 YEARS.

The season has been one of the best. One man took 200 lbs. of extracted honey from each of two of his best colonies. He runs for extracted honey, then feeds back. He has practiced that for over 12 years. He keeps from 15 to 40 colonies. He is an extensive contractor, or more would be kept. I told him yesterday he was the only one who made feeding back a success.

CHANGING QUEENS DURING THE HONEY-FLOW.

We have only white clover this year. The season was poor from May 25 to July 1. My crop is 850 lbs. from 22 colonies, spring count. I increased to 28. I removed half the queens from May 28 to June 5. I tried to get a young laying queen by June 15, but failed. I missed a cell in some, and in others they started cells on very old comb, so many swarmed out. But they invariably swarmed out in the afternoon of the day before the young queen came. Of course, they returned then. Should we have a rainy day it would break the rule. I never saw that in print, or noticed it in colonies that had swarmed and cast a second. I suppose, as they were kept at home so long, they were so anxious to take a trial flight. Three failed to swarm at all that had queens. I am satisfied with the system and the honey produced. It is regular, and very fine in appearance.

SELLING SECTIONS BY THE PIECE INSTEAD OF BY THE POUND.

Pottstown has nearly 15,000 people, and over fifty grocers. One man sells by weight; the forty-nine sell sections of honey by the piece. The man that sells by weight sold No. 1 honey from Muscatine, Iowa, for 11 cts. per section last spring. He is no profit to the bee-men, because he beats down prices.

About six or eight of my hives had about 45 lbs. in the brood-nest at the end of the harvest, or my crop would have been 1000 lbs. Several I contracted to five combs, then I got it all without a queen in the hive. W. W. KULP.

Pottstown, Pa., Sept. 4.

Friend K., it is possible that the man you mention makes a success by feeding back, providing he does it only to finish up sections partly filled, providing he also gets a large price for comb honey and a comparatively small one for extracted. At the present time there is quite a wide difference in the market, nice comb honey bringing very nearly if not quite double the price of the liquid. If only one man out of fifty in Pittston sells honey by weight, I do not know but that I shall have to give up; but it is something that I had hardly ever heard of when the matter was first mentioned. I am sure there are very few places in our State where sections are sold by the piece. Now, if this is going to be the rule, we as bee-keepers ought to do all we can to have our sections uniform in weight. I know that, in many places, there is a growing disposition to get rid of pennies, and I do not know but that this is the right thing to do. A few days ago I told our wagon man to reduce the price of the small sugar pumpkins to half a cent a pound. He said, after a while, however, that it was too small business, and that people were just as well satisfied if we told them that the pumpkins were 5 cts. for the small ones and 10 cts. for the large ones. I have many times thought that the time is coming when we can not afford to waste time over pennies. The five and ten cent counters, you know, have been a move in the right direction. Quite a few berry-growers have written me that they are obliged to sell berries for either 10 cts. a quart or 15—that people would not have any half way about it. In fact, we are coming to this a great deal ourselves. We use pint boxes altogether for berries, and sell them at either 5 cts. a box or two boxes for 15 cts. For very choice berries we sometimes get 10 cts. a pint. Now, in view of this, our honey should be put up in such quantities as to be sold at 10, 15, or 20 cts. a package. Perhaps the very thin ones or flat ones had better be sorted out. If a customer wants two sections, he might be given a thick and a thin one, so as to make it fair.

MORE ABOUT WATERING-PLACES FOR BEES.

In answer to the inquiry of John Burr, page 713, I will say that, three years ago, when there was no prospect of a honey crop, I rented a large farm, and went to raising other crops. On the farm was a large artificial pond; and whenever the bees had occasion to carry water they went to the pond for it, the soft mud being at times almost covered with the striped Italians. They bothered nowhere else. This summer they were so thick around my watering-trough that on some days the animals could not be induced to approach the trough until the bees had retired in the evening. We also had a small out-apiary near a road that is much used. At the road was a well and trough. The bees troubled the neighbors very much, and attacked a team that had stopped for water. The team ran away, and the occupant (a woman) was considerably hurt. Now, I have determined to construct a pond on my premises, for the bees to get water. The warm stagnant water seems to be just what they want.

CATFISH.

When on the farm, as already mentioned, I put some catfish spawn into the pond this season, and the occupants of the farm have been catching some of those "cats" a foot in length, and delicious as only catfish are. You see, I shall make my pond answer a double purpose. The pond will draw the bees from the well, and raise fish for the family, and the presence of the fish in the pond will prevent the water from becoming stagnant to a degree of unhealthfulness. Besides, I can arrange it so as to be a very convenient watering-place for my stock without allowing the stock to go into the pond.

Centerville, Ia., Oct. 4. G. B. REPLOGLE.

Friend R., within a little distance from our apiary is a pebbly brook, and in the summer time the water stands only in holes and hollows of the rocks a great part of the time. This creek is out of everybody's way, and it is often

so full of bees that the horses are afraid to cross the brook when cultivating. Perhaps others may make use of such brooks. Your remarks about catfish suggest something that I have not thought about before; namely, that carp-ponds are really a part of a bee-keeper's outfit. Our bees seldom go to the carp-pond, however, because the brook below it is so much handier.

KEENEY'S METHOD OF WIRING; USING TACKS INSTEAD OF WIRE NAILS.

I have been using the Hatch plan of wiring frames, as given on page 561, and I have found something I like better than either staples or wire nails to fasten the wire on. It is 14-oz. Swede-iron tacks. Drive the tack about ⅓ of its depth in the ⅜-inch end-bar, placing them in the same position that Mr. Hatch does the staples or wire nails. Take spool wire (not coil), and run the wire the same as he does, leaving all wires loose except those running from 2 to 3 and 4 to 1; draw those tight. After the wire is on, stand four frames on end, and drive the tacks home, or until the wires are drawn as tight as you like them. I find the wire will break every time before the tack will pull out. The advantage over staples is, one can work much faster, and no waste of wire; and over the wire nails you can draw your wires just where you want them. The wire should be wrapped two or three times around the tack, to make it hold well. If the above is of any use, give it to the bee-keepers.

Delavan, Wis., Aug. 11. F. E. BURROWS.

You can use tacks, but you are obliged to sacrifice the two side perpendicular wires, which we regard as so necessary. On this account we should much prefer the hooked wire nails.

CANDIED HONEY FOR WINTERING.

Will the bees winter safely on candied honey? If not, what can I do, not having any extra brood-combs? FRANK W. LIGHTON.

Williamsport, Pa., Sept. 14.

As a rule, bees will winter all right on candied honey; but sometimes, when it is candied very hard, as honey from special plants does at times, it seems some seasons the bees do not seem to get along so well with it. When the weather becomes very warm, however, say late in the spring, they will bring water and work it up. When there happens to be a dearth of bee-pasturage between fruit-blossoms and white clover, so that the bees need feeding, candy can be used to good advantage.

A GOOD REPORT FROM MRS. AXTELL.

Our bees are again nicely at work filling their hives with honey. We have strong hopes they will fill up for winter without having to feed. Our home apiary here on the prairie is getting more honey than the timber apiary, four miles away, although there is much more waste land in the vicinity of the timber apiary; but our bees at home always average more honey per colony, except early in the spring, when they get more from the trees. If we do not have to feed the honey taken from them in the spring, there will be fair returns for the men's labor upon them, and the pleasure I have had with them will repay me for my work. The bees come in heavy laden now. They look so big and heavy and yellow and soft and clumsy, like baby bees, that it is easy to handle them now. What a delightsome business this bee-keeping would be if they were storing honey the whole year round! Everybody then would be bee-keepers, and honey would be so cheap we could hardly give it away. MRS. L. C. AXTELL.

Roseville, Ill., Sept. 5.

WHAT I DO WITH PROPOLIS.

When my husband went into the bee-business, propolis used to be a source of trouble to me. If thrown on the ground, it stuck to the children's bare feet, and to every thing that came in contact with it. I now save it and use it to seal jars of fruit with. I have gooseberries, currants, and other fruit, put in jars. Any ordinary cover will do. Seal it well around with propolis, and it will keep well. MRS. BURR.

Braceville, Ill., July 25, 1890.

Well done, my good friend. I have insisted for long years that propolis must be good for *something*, and now you have hit it exactly. We all know that it will stick to tin, glass, or any thing else; but does it never get soft in very hot weather?

MILLER'S PLAN OF AN APIARY; FURTHER SUGGESTIONS.

Allow me to say, in reply to Ernest's comments on my article, page 524, July 15, that, after I had written the article, I concluded the distances I had allowed were too little, but thought I would not re-write it, as every one would be likely to make the distances to suit himself, if any should try the plan. I would allow ample space, yet not more than necessary, as this makes more work for the lawn-mower. I prefer to use a scythe to keep down the grass outside and around the apiary, as it does not need to be cut as often as that among the hives; and one accustomed to using a scythe can, with a good keen one, do a respectable job on a lawn.

QUEENS, LAYING OF.

Some time ago, in passing through the apiary I concluded to look at some young queens that had hatched in colonies that had cast swarms. The queens were some two or three weeks old. I opened a hive and found two, three, and sometimes four eggs in a cell. I was somewhat suspicious, and concluded to see what kind of a queen there was in the hive, if any. In a short time my eyes caught sight of her, one of the most beautiful queens I ever saw. I went to a second and third hive, and in all of them I found the same state of affairs. The colonies were strong, and from one of them, a one-story ten-frame hive, I had extracted 26 lbs. of honey a short time before. Those queens are all good, and I write this as a warning to beginners not to be too hasty in deciding that they have fertile workers or poor queens. S. E. MILLER.

Bluffton, Mo., Aug. 9.

DIED FROM A BEE-STING.

We inclose a clipping from the Syracuse Evening *Herald*, of Aug. 28. The doctor that lives next door to us says Mr. B. died from the shock. He says some people have died from the shock caused by having a tooth extracted.

Syracuse, N. Y., Aug. 28. F. A. SALISBURY.

La Fayette, Aug. 28.—The death of Alexander S. Baker yesterday occurred under very peculiar circumstances. He died from the effects of a small honey-bee sting, and within ten minutes after being stung. August 8th Mr. Baker was stung on the back of his neck and became unconscious, remaining in that condition for an hour or more. On Wednesday he was stung on the end of his nose, and the effect was similar to his first experience, and proved fatal.

Some years ago Mr. Baker kept an apiary and

nearly lost his life then by being stung. This was thirty-two years ago. He was very ill at that time, and since then his pulse has been as low as forty-five almost habitually. Five years ago he was stung with nearly the same effect.

On Wednesday Mr. Baker was in the garden at his farm picking beans when he was stung. He went into the house as hurriedly as possible, and told one of the members of the family what had happened, with the remark that he was sick at his stomach. Those were his last words. He died immediately. Dr. Morris, who was called, says in describing the case that Mr. Baker died from "constitutional susceptibility."

REPORTS ENCOURAGING.

FROM 18 TO 20 LBS. PER HIVE.

I am now taking off my honey. I am getting from 18 to 20 lbs. per hive—about a third of a crop. I have 19 colonies. F. BURR.
Braidwood, Ill., Sept. 20.

A NICE LOT OF HONEY.

There has been an abundance of white clover; also the flow of basswood was good, so that we have a nice lot of honey. Our bees have not worked on buckwheat. JOHN HERRICK.
Gerry, N. Y., Sept. 23.

BEES DOING SPLENDIDLY.

Bees here are doing well on buckwheat and heartsease. We had a fine crop of basswood, and indications are favorable for a good fall honey-flow. THEO. WALKER.
Denison, Ia., Aug. 30.

HONEY CROP EXCELLENT.

The honey crop is good in quality and fair in quantity. From 80 colonies I have taken 5000 lbs. of comb honey. This is the largest yield since I commenced bee-keeping.
Eddyville, N. Y., Sept. 22. C. H. AVARS.

HONEY CROP ABOUT AN AVERAGE.

Our honey crop will be about an average one. We shall get about 60 lbs. of surplus per hive. Very few bees swarmed, and are therefore very strong. J. L. GANDY.
Humboldt, Neb., Sept. 8.

14 TONS OF HONEY.

We have been in the business for 14 years. The bee-business goes well with our family. We extracted this year 14 tons of choice sage honey. California wild sage makes the best of honey. I have just returned from a trip through Colorado, hunting a market for honey and horses. Our home market for honey is very good, so we will sell at home. Our bees are mostly blacks. CHAS. LASALLE.
Lompoc, Cal., Sept. 12.

40 LBS. PER COLONY.

I noticed in the last GLEANINGS, Sept. 15th, that reports from this State are rather discouraging, so I send you my experience to partly balance it. Last spring I had three good colonies of Italians in the Root chaff hive. I now have seven colonies, and have taken 40 lbs. per colony of comb honey, mostly heartsease. Choice 1-lb. sections sell for 20 cts. per section. Bees are in splendid condition for winter.
J. E. LEYDA.
Weeping Water, Neb., Sept. 26, 1890.

UPWARD OF 200 LBS. PER COLONY.

This is a comparatively new country, therefore our bee-industry is young, light, and limited; but few of us own 50 colonies of bees, most of which have done well with proper care. My bees have averaged upward of 200 lbs. of honey to the colony, and but slight increase of bees. My best record is 330 lbs. of strained honey, no increase. I shall try to beat that record next year. Bees are all in good condition for wintering. Average price of honey is 10 cts. per lb.
Elsinore, Utah, Oct. 6. N. B. BALDWIN.

Well, friend B., that is pretty good for this season of poor reports. We should have been glad to know of the source of such a great crop of honey. I wonder if it is not the sweet clover that I wrote up after my visit to Utah.

ENCOURAGING FOR ASTERS.

Please identify the inclosed plants, white and purple. The bees are very busy on it, my scale hive showing 3½ and 2 lbs. per day when the weather is favorable, and working only from 10 to 4. J. B. ENOS.
Connellsville, Pa., Oct. 8.

Well, friend E., that is a pretty good report—3½ lbs. a day as late as Oct. 8. We have been in the habit of taking it for granted that little if any honey is gathered as late as October, in our locality; but the fact you furnish encourages bee-keepers to be slow in deciding that all hope of a honey crop is at an end then.

STRAWBERRIES AND BEES.

I raised this year 944 qts. of strawberries on ⅛ of an acre. Last year at this time, from seven colonies I got 950 lbs. of white-clover honey in 1-lb. sections; this year from 21, 320 lbs.
W. E. THOMPSON.
Laddonia, Mo., Aug. 23.

Why, friend T., you are an old "wheel-horse," to be sure, if you continue to make such good yields as you mention in the above, both in honey and in strawberries. Why didn't you squeeze out a few more quarts and make it a thousand from an eighth of an acre?

A GOOD REPORT.

I had an increase of 91. I extracted 22,130 lbs., and obtained, in 1-lb. sections, 1600 lbs. The bees are in good condition now.
Tropico, Cal., Sept. 19. J. J. COLE.

Well done, old friend; but you did not tell us how many colonies you had to commence with. I am exceedingly glad to know that you have really got a good thing in your California investment. I will explain to our readers, that friend Cole purchased an apiary at the foot of the mountains. I went over there to look at it, just about the time of the purchase. The ranch was supplied with water which came down from the mountains in—what do you suppose? Why, in cane fish-poles that grow plentifully in the neighborhood. The only drawback was, that the cayotes, or the prairie wolves, had discovered that they could get water by chewing up the fish-poles. As this saved them traveling half a mile or more, it became a favorite pastime. But, oh my! was it not vexatious to the proprietor? As the fall was considerable, when the canes were broken the water would frequently spout up in the air to a great height.

42,000 LBS. OF HONEY.

Our season is over. We have about half a crop; I got 28,000 lbs. of extracted honey; 14,000 lbs. of comb honey, and about 400 lbs. of beeswax. I have a 7-frame automatic extractor, and I have a double honey-tank holding seven tons and a half at one time; and a large solar extractor. C. P. LANE.

Warthan, Cal., July 25.

NOTES AND QUERIES.

TWO BAD SEASONS.

The past two seasons have been very hard for bees in this vicinity. Mine have not made a pound of box honey this season. It has been the poorest but one for 25 years.

H. S. WEBBER.

Monroe Center, Me., Sept. 15.

BEES WORKING ON PARSNIP.

I saw in GLEANINGS of Oct. 1, page 713, about bees working on parsnip. I raised parsnip-seed in my garden, and the bees worked on it every pleasant day while in bloom. I think it a good honey-plant. We can find out another year.

MRS. M. E. TANNER.

North Woodbury, Ct., Oct. 20.

900 LBS. FROM 21 STOCKS.

My honey crop for this poor season foots up over 900 lbs. in 1-lb. sections from 21 hives. Too late. Last-year swarms in gums are doing nothing above their living. As a general thing, among the old class of bee-keepers the honey crop has been a failure in these parts.

Pine Grove, O., Sept. 27. S. DANIELS.

AN INCREASE OF 10 COLONIES FROM A 3-FRAME NUCLEUS.

I received from you last September one three-frame nucleus, which wintered in good shape and increased this year to ten colonies, which are strong enough to winter all right; and extracted 155 lbs. of alfalfa honey.

Keating, Ore., Oct. 5. A. S. LOVE.

[You did well.]

CHANGING QUEENS.

This will not stop the nameless disease. I had five queens last year from St. Louis, and introduced them to my bees. They are affected by the disease, and they are worse now than before. FRED A. HUND.

Casco, Mich., Oct. 6.

[Friend H., we hardly think the above is conclusive, for the queens you received may have been from colonies afflicted in a like manner. I think giving the stocks new queens from an apiary that never had the disease will put an end to it—at least, we have never known it to fail.]

ITALIANS ON GRAPES.

I find the Italian bees I bought this year surpass hybrids in one thing—they are always on hand where there is *any chance*. If a bee gets drowned in sorghum it is an Italian; while the grapes on our house-arbor, after the rains cracked them, were like a swarm, and all Italians. This was the first time I ever saw any havoc by bees to grapes. W. N. ROOT.

Assumption, Ill., Oct. 6.

[I know this is true of the Italians, many times. Very often the Italians will be at work on red clover while the blacks are working on rotten fruit, and hanging around cider-mills.]

A STONE BUILDING FOR BEES.

How would you prepare the following building for wintering bees? I have a stone building 12 feet long, 10 wide, 8 high, with a common shingle roof, in which I wish to hive 35 colonies of bees, all in 8 and 10 frame Langstroth hives.

Mt. Horeb, Wis., Oct. 9. E. C. ELVER.

[If your building is frost-proof, pile them up in rows without bottom-boards, *a la* Boardman, or as is explained in our latest A B C of Bee Culture. Stone buildings have not been found very successful—at least, so far as my experience goes. They are apt to be damp and cold, and they do not dry out as well as the sawdust-packed repositories.]

APPLE-TREES FOR SHADE.

I should like to be informed how much shade a swarm of bees will do the best under, through the summer season. Is the shade of large apple-trees too dense? I have some swarms standing directly under quite large apple-trees, where the sun shines on the fronts of the hives less than half the time. A. P. FLETCHER.

Proctorsville, Vt., Aug. 31.

[Apple-trees, if not too large, and the foliage not too dense, form excellent shade for hives. A young orchard makes, therefore, a very nice place. For further particulars, see the A B C of Bee Culture.]

GETTING YOUNG PLANTS FROM STRAWBERRIES SET IN AUGUST.

The 24 Gandy strawberry-plants sent me Aug. 5th have sent out fifty runners, and the Haverland has sent out quite a number, all doing splendidly. I lost but one plant out of 96, and something cut the root of it. If the weather continues nice for three or four weeks, I shall get 100 sets from them. P. M. BYERLY.

Farley, Ia., Sept. 10.

[Friend B., in our locality I think we could safely get double the number, with a favorable fall like the present one.]

WHEN TO MOVE A WHOLE APIARY 100 YARDS.

My bee-yard is within six feet of my dwelling, and within twenty feet of the public highway, with no obstruction intervening, save small fruit-trees, peach, quince, and pear. When I established it there I took no thought of increase. It now numbers over 20 stands. Should I live and retain my present and ever increasing interest I must remove them to a spot more remote from public travel. I desire to place them about 100 yards from their present location. Will you tell how to do it, and when?

Guys, Md., Sept. 29. WM. S. ADAMS.

[Move this winter, after the bees have been confined for awhile.]

HOW TO MAKE GREEN-TOMATO PIE.

I wonder if the readers of GLEANINGS know that green tomatoes are excellent for pies. If you have never tried them, ask Mrs. R. to make one. Here is a recipe:

Prepare the tomatoes as you would apples. Take ⅔ cup of sugar; 2 heaping teaspoons flour; stir sugar and flour together, and spread on the bottom crust; then add tomatoes and two tablespoons vinegar, and a little butter. Put on upper crust, and bake. Cut the pie into as many pieces as you wish. I think four is small enough. S. H. HOUGH.

Saybrook, O., Sept. 16.

THE BOOK AND THE STRAWBERRIES.

The book on strawberries is at hand. Thanks. The strawberry-plants are all growing nicely, and it certainly is a delight to see

them grow. Haverlands and Gandies commenced throwing out runners right away, and starting new plants. I want to ask you one question: Will the mother-plant do to set out in the spring with the young plants, and cultivate according to instructions (that is, will she throw out runners) next summer?

Tatesville, Pa., Sept. 18. G. H. KNISLEY.

[Yes, but it is not considered as good.]

THE STING OF THE RED ANT OF TEXAS WORSE THAN THOSE OF A DOZEN BEES.

I notice in GLEANINGS, of Sept. 15, that Mr. Geo. E. Hailes, of Lytle, Tex., gives an account of red ants attacking his bees. Now, remember that was just after a rain, and in July, so the ants were swarming. They always swarm just after a rain. Red ants that live in the ground never bother bees. I have four or five ant-beds in my bee-yard. You seem surprised to hear that an ant-sting is worse than a bee-sting. That is because you are not acquainted with them. They are not nearly so large as a bee, but are all "pizen." I would rather be stung by a dozen bees at one time than one red ant. They are nearly as bad at hurting as a scorpion. If you have a remedy for exterminating red ants, please turn it loose in Texas. W. F. ELLIOTT.

Clio, Tex., Oct. 4, 1890.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

OUR BEAUTIFUL FALL WEATHER.

At present writing, Oct. 25, we have not yet had a frost to injure lima beans and tomatoes—that is, up around the windmill they are uninjured. A frost injured some things a little on the lower grounds a few nights ago. There is something queer about the weather this fall. A great many times it has cleared off cold, and we have had every indication of a severe freeze; but before morning the temperature would let up, and the frost that started so fiercely the night before did not amount to much after all. We had the same state of affairs a year ago. Yesterday we had green peas for breakfast, both Stratagem and American Wonder, and I never ate sweeter or nicer peas in my life. For dinner we had Livingston's Gold Coin sweet corn. It is as yellow as old gold, and almost as sweet as any sweet corn, having at the same time a slight field-corn flavor. There has been quite a little discussion about the propriety of putting it in our forthcoming catalogue. The only difficulty is, that it increases the number of varieties of corn further than we want it. Tomatoes are still ripening slowly.

This year, whenever I put in a crop so late that I thought it might *possibly* have a chance to mature, we hit it just right; and so many things often hold out longer than we expect, I rather like the idea of sowing late crops, even if there are a good many chances for them to be a failure. We are still picking wax beans, and have a fine crop of Eclipse beets, about as large as hens' eggs. Cabbages are so plentiful we are offering them at half a cent a pound. Not so with cauliflower, however. There happens to be a scarcity, so we are getting *15 cents per lb.* for the handsomest Snowball cauliflower we ever raised. All insect enemies have vanished, and every thing in the cabbage and turnip tribe is growing with great luxuriance, unharmed by any insect foe. This is another advantage with late stuff. We have single stalks of White Plume celery weighing 3 lbs., and we are still getting 10 cts. per lb. for first class. Just think of it! 30 cts. for a single root of celery! The New Rose is growing finely, but it has not matured enough to use yet. We are now selling heads of Grand Rapids lettuce, weighing two or three pounds, at the low price of 5 cts. per lb. Beautiful parsnips bring 3 cts. per lb. Chinese Rose winter radish now "takes the cake" over every thing else. They are almost as mild as a very sweet turnip; and when first washed and put on the wagon, the delicate rose color makes them more attractive than any thing else in the radish line. They bring 10 cents per dozen radishes. Spinach is large enough to gather, but we have enough other stuff so that we do not need it. Our Hubbard squashes are all gathered, and stored in slatted potato-boxes, out of the way of the frost. We have beautiful Ignotum tomatoes on the table every day, gathered right from the field. Served with sugar and cream, I believe I like them fully as well as yellow peaches; and when peaches are so high that you have to pay 30 cents per lb. for evaporated ones, with the skins on, I tell you it is quite an item to have plenty of tomatoes out in the field. Every thing up on the hill by the windmill is so far uninjured by the frost; so you see that it pays a market-gardener to have a hill for late supplies, as well as to have a rich creek-bottom garden. We have the handsomest turnips that I ever saw or heard of. The Purple-top White Globe is still our favorite.

Now is the time to get ready your green-houses or cold-frames. Lettuce, beets, spinach, cabbage-plants for cold-frames, winter onions for use when the ground is frozen, rhubarb, radishes, etc., should be growing in beds, to be covered with glass later. I am decidedly in favor of movable glass of some shape or sort; and then I would leave the glass off just as long as possible without injury to the plants.

RAISING STRAWBERRIES JUST LIKE CORN.

Friend Root:—I've just finished reading the "A B C of Strawberry Growing," and it has stirred me all up. It's a good book, isn't it? How I wish the busy times of bees and strawberries didn't come together, that I might try my hand at it again, and see how much better I could do with the increased light!

The proportionate prices of land and labor make a good deal of difference as to the wisest plan of raising strawberries. If land is very high, and labor very cheap, then it may be best to use the single-hill plan, and persistently keep down all runners. On the contrary, if land is cheap and labor dear, the very reverse may be best. As this is the condition of things among many of your readers in the far West, it may be well to tell how I raised strawberries by the acre, years ago, on land that cost $22 per acre, near a village. The ground was prepared exactly as for corn, and you must remember that, in some new countries, we have very rich land for corn. The land was marked as for corn, marking both ways, one plant set at each cross-mark, and then the ground was cultivated both ways, and the runners allowed to run and set at their own sweet will. As the runners naturally incline to spread in all directions, nothing better could be done than to let them alone. In addition to the cultivating, a little hoeing kept down the weeds, and in some places this might not be necessary on new ground.

Now, I don't say this is the best plan; but don't you think that many a farmer out West who thinks he can't fuss to raise strawberries might be induced to do so if he were told how little trouble would supply his table? Just tell him to set one corner of a corn-field to strawberry-plants, and cultivate them with the corn, the only difference being in setting the plants. Likely he may raise a question about mulching. Well, if that's going to scare him out of it, tell him I raised a paying crop without using any mulch whatever, and you know it's a good bit colder here than at Medina.

TRIMMING.

It may be presumptuous for one so much behind the times as I am, in matters horticultural, to suggest any addition to what has been said by two such experts as you and friend Terry. Nevertheless I know you'll let me "speak in meeting," and will good-naturedly set me right if I'm away off.

I see nothing said in the book, if I am not mistaken, about trimming, except to cut off the dead leaves, and perhaps cutting off the ends of the roots. Now, I don't know of any harm that these dead leaves do except to be in the way; but I do know of harm that some of the *living* leaves do, in all plants that ever I have bought. If a plant be taken up by means of one of Root's transplanting-tubes, and set out at once, all roots intact, and the soil adhering, not a leaf should be touched. But if the plants have come from a distance, the chances are that many of the little rootlets are so injured that they will never work again, and the number of leaves must be diminished to correspond with the number of working roots left. So I always felt safest to trim off all leaves except the center one, besides cutting square across the ends of the roots so as to take off perhaps a fourth of the longest ones. These long straggling roots don't get well planted, and a number of good working roots will start from the freshly cut ends.

PUDDLING.

Has "puddling" gone out of fashion? and is there something that I don't understand about it, that makes it better to lift the plants right out of water when set? When plants are taken out of water, you know what a tendency they have to cling together—just exactly what you don't want them to do. Stick them back in the water, and they spread out in a natural position; but the minute they are withdrawn they try to get into a single rope. Thus planted, there will be places where no soil will touch the roots, and holes left between. Now, what is "puddling"? Simply dipping the roots in very thin mud. Take a dish or pail of water, and stir into it all the soil it will bear, so that, when you stick into it the roots of a plant, and shake the plant up and down a little, the roots will spread out in a natural position. Upon lifting out the plant, each root will have a coating of soil, so they can not cling together as when taken out of the water, and will go into the ground in better position and condition. If the "puddle" be too thin, not enough soil will adhere to the roots; and if too thick, the roots will not readily go into it. Have too much soil in the bottom, and add water on top as often as needed. After puddling, the very fine little roots will stand out naturally, as you can not get them to do if you take them out of clear water. Leaving plants too long in clear water may injure them, and a puddled plant will not injure as quickly by drying.

MARKING.

In addition to the plans given for marking the ground, some might find it convenient to use a plan practiced by nurserymen. They stretch a rope on the ground; then, pressing on it the blade of a hoe in front of them, they slide the hoe along as fast as they can walk, leaving the imprint of the rope in the soft ground. I have seen hoes with holes worn in the middle of the blade through much use of this kind.

You ought to have a big vote of thanks for getting out so practical a book. C. C. MILLER.

Marengo, Ill., Oct. 20.

Well, old friend, I do not know but we owe *you* a vote of thanks. I have several times felt a longing to try strawberries on just the plan you give, but our ground is too expensive, as you suggest. Cultivating both ways would certainly save a great amount of labor. We have practiced trimming—in fact, we always trim our plants before sending them off by mail; but after many experiments in sending out and receiving the plants, I am sure there are two extremes in the matter, and I would never trim them down to one leaf. We leave three leaves—counting the new one just pushing out. We received 100 plants in August, from New Jersey, trimmed, as you suggest, to one leaf; but while they all lived, the growth has been very much slower than with others where there were two or three leaves left. Matthew Crawford and Mr. Little both expressed themselves against trimming too closely, as they looked at the plants above mentioned. You give me a new idea in favor of puddling; and one reason why I have disliked putting the plants in a pail of water, is because the roots cling together in the way you mention. I shall try puddling again, with the additional light you give us in regard to it. My impression is, however, that the careful grower who really loves his plants will make them grow by almost any of the methods given. Pushing a hoe along the rope is another idea that will be valuable to me. We have always made a mark by walking on the rope; but this takes too much time where one foot is put tight up with the other as we walk.

PLANTING STRAWBERRIES IN THE FALL, IN FLORIDA.

Friend Root:—I consider your "crop" department one of the most interesting in GLEANINGS, and I always delight to read it. I have just read in the Sept. 15th number what you and S. P. Yoder have to say under the above head. Here in Florida, all of the hundreds of thousands of quarts of berries that are shipped out of the State every year are grown on plants set, for the most part, in September and October. These plants begin to bear the following January, and continue to bear until June. These plants are not set "by way of experiment," but by the *acre;* and, given the proper season and attention, they pay well.

Alva, Fla., Sept. 27. H. G. BURNET.

Friend B., circumstances are so different between your locality and ours that there is no particular application except this: You have demonstrated that a plant that grows in the fall may bear a great crop of berries the following spring; but I presume that with you, as a

matter of course, strawberry-plants grow every month in the winter time, and have no rest at all. Well, now, do you plow them under after getting one crop, or do you keep the weeds out through all of the ensuing summer and get a second crop of berries from the same bed? And, by the way, what is to hinder you from getting a crop of berries in the fall, as they do in California? It seems to me that a timely application of water—that is, if you do not have it in abundance from the rains—may enable you to have strawberries for Thanksgiving and Christmas.

REDUCING THE NUMBER OF VEGETABLES, ETC.

Dear Friend:—Perhaps you are not aware of having a subscriber away down in old Tide Water, Va., who is depending so much upon you for valuable information in the horticultural line, and that I read GLEANINGS with great interest, and always await anxiously its arrival. Will you allow me the privilege of expressing my opinion in regard to your condensed seed catalogue? I think it is a capital idea, provided you cover the whole ground and include seeds for us large growers (the growers for the great Boston markets), as well as those who are growing for only a local market. Say, for instance, I am growing melons for the great market of New York. Were I to take your advice, and grow Landreth's Extra Early, why, it would be the means of my losing a good deal of money. I grew watermelons last year as a field crop, and realized about $100 net profit per acre, and it was due to growing the right variety—Kolb's Gem.

In regard to your cantaloupes, while I have never grown Landreth's Extra Early, I can't agree as to the Emerald Gem and the Banana. My local market greatly prefers Miller's Cream; and while it is not so early, it is much the heaviest cropper; and my advice to my brother-truckers is, to grow the Hackensack or Acme, to ship.

In regard to lettuce for outdoor culture, the way we cultivate it down here, I think the Tennis Ball variety is second to none.

I agree with you about tomatoes. I have ripe tomatoes from the same vines that I began to gather from the 10th of June (Ignotum). The coming season I expect to grow 3 varieties—Ignotum, Burpee's Matchless, and Livingston's Beauty. I have never fairly tested the two latter. I think the only fault the Ignotum has is this: it won't stand dry weather, and will rot at the seed end.

Now, Mr. Root, I am a very good friend of yours, and I advocate your advice everywhere. I have profited more by reading after you than after everybody else together; and I feel as if I knew you, and would like much to meet you. If you ever come to old Virginia, and don't call to see me, I shall not like it at all.

I am a great friend to the son of toil; and if it is possible for me to speak in his behalf I will take pleasure in doing so. E. L. LIPSCOMB.

West Point, Va., Oct. 23.

Many thanks, my good friend, for the valuable suggestions you give us; but instead of helping to reduce the number, you rather give us excellent reasons why we should enlarge it. Well, this is just about as I expected; and as different localities and different markets require special varieties, perhaps it is impossible to keep the number down so small as I had planned, especially for a general seed catalogue.

MYSELF AND MY NEIGHBORS.

COPY OF A PAPER PREPARED FOR READING AT THE NATIONAL CONVENTION IN KEOKUK, IOWA.

Have faith in God.—MARK 11:22.

Perhaps, dear friends, you think my text is a rather strange start-out for a paper on the honey-resources of the United States. May be it is; but I believe it is applicable to the subject in question, after all. For a little time back it has seemed to many of our bee-keeping friends as if our industry were going down hill. We have been in danger of losing faith in bee-keeping; and I fear that some of us have been tempted to lose faith in the great Ruler of all things. How can a man be a successful bee-keeper, without faith in an all-wise overruling power? How can he, in fact, be successful in any thing, in this whole wide world, without faith in God? In working, and devising means, and in planning for the future, what incentive is there to push ahead unless we have this faith? Perhaps some of you will agree with me in a general way; but I wish to exhort you to-day, not only to have reverence and respect for the all-wise Creator, but to have faith that he cares for us and loves us, and keeps watch over us, and hears prayer. During the past few weeks we have had an unusual amount of rainy weather—at least, such has been the case in Ohio and adjoining States. Men have planned, but God seems to have thwarted their plans by so much wetness. Shall we complain of him? Surely not. The words of our text bid us have faith in God. Shall we grumble at his dispensations? By no manner of means. There are certain things we can control, but we can not control the weather—at least, we have not done so yet; therefore we may safely say, just now at least, that the weather is God's part, and all we have to do is to attend to *our* part. Perhaps some of you say that I do not know what it is to have my bread and butter cut off by such unheard-of weather. I know something of it, dear friends. My crop of seed beans, including the bush limas, that are worth quite a lot of money, are still out in the wet. Many are rotted and spoiled hopelessly. My special crop of seed corn, that I value a good deal, has not been dry enough in a month to do any thing with, unless each ear be hung up in a dry place, as it hangs on a stalk. I must lose it, or cure it at a great expense. But I have not looked sour nor felt cross yet, although I sometimes have to say to myself, "Thy will, not mine, be done." It has been very perplexing for me to keep a large force of hands at work, for we do not send our men home when it storms, as many establishments do. Again and again have I asked God in the morning to give me wisdom in devising ways and means to keep my men at work, and at the same time have them work profitably. So far the answer has come, and I have often wondered how it was that things change around, and seem to dovetail one into another, in such a way as to call for just the man that I did not know what to do with next. Then how much happier one feels who has faith in God, and, as a natural sequence, faith in humanity! I fear, dear friends, that I should not have been away off here away from home, when so many things seemed to need me, if it were not for faith in God and faith in you. I believe we shall always be blessed and prospered in doing our duty, and duty seemed to call me here.

Now, about the honey resources of our own country. My faith is brighter to-day than it was a few years ago. I have prayed for our industry a good deal; and we have in our con-

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COMMISSION MEN.

SELLING HONEY ON COMMISSION.

I think we should all try to build up our own home market, and we can do so by perseverance; but persons handling several hundred colonies of bees, and with no taste for peddling honey, often find more of it on their hands than they can dispose of in the home market. Then it is that we are thankful for honest and trusty commission merchants.

In the first place, I think people do not understand how to deal with commission men, as was the case when *we* began selling honey. The man who has honey or other farm produce for sale, more than he can well dispose of at home, should go to one or more of the grocerymen in his nearest large town, and get the names and address of several commission men, and ask this grocer whether his dealings with such and such a man have been fair and honorable, and note it down; then select the man he thinks he can trust, and send to him for his circular giving daily prices of farm produce.

Possibly the producer has friends living in the city who could make inquiries for him, for a trusty commission merchant. That business is like all others—some very honorable men are engaged in it, and some very dishonorable ones as well. Then write to the man, telling him that you have honey to sell, and that, if he wishes to handle it for you, you will send him some. Send as soon as possible after his reply, *but not before.* Yet, one need not be in too big a rush, as we have found by much experience that the apiarist has plenty of time to sell his honey during fall and winter, and we always get just as good prices during the early winter months as in the fall months; yet I would sell as fast as I could conveniently get at it after the first of September, as honey sells most rapidly in October and November.

We always try to ship the first of the week, not later than the middle, that the honey may arrive at its destination the same week. The apiarist should accompany the honey to the cars if possible, and help load it on, spreading out paper to set it on, and see that it is piled in with the ends of the section to the end of the car, the piles of cases not too high. The pile against the end of the car may be higher than the outside, and glass always inward, to avoid breakage.

Sometimes we can get a through car, so that it will not have to be changed from one car to another, which is often the cause of broken honey. Sometimes we can send it in a refrigerator car, which is a through car, and we could never see that the cold injured the honey. Send the bill of lading in the letter to the commission merchant, telling him how much per pound you ask for the honey. Sometimes we may name the price too high, and he can not sell; in that case he may hold yours and sell for others who have not named so high a price; but generally he will not hold it long, as he wishes his goods to move off, and he will either sell or notify you the price is too high, so you can write him again, lowering it. Of course, you keep yourself posted on the honey market. He has no right to sell at a lower price until you give directions. If the apiarist names no price, the commission man, if he is honest, and wishes your patronage, will do just as well by you as if you named your own price; but if he is not honest, it gives him a chance to cheat you if you leave the price with him, as I know they do sometimes sell at a better price than they report to the apiarist. If he is slow in writing you, write him again, and ask him how soon he will be sold out, and can handle more. Insist on having pay for as many pounds as are sent, fractions included, except, if the fractions result in less than 5 cents, it is usual to throw that in. Yet if the returns fall short 5 or 10 lbs. on several hundred, I should say nothing about it; but if it fell short much more I would instruct the commission man not to do so again, as it is not rulable—at least, this is what our most

honest commission merchant wrote us when we asked him why it was his returns were so accurate, seldom falling short any in the least. The just weights, with fractions thereof, should be plainly marked on one end of the box of honey, and the commission merchant's address stenciled or plainly written on *top*, not on the side, so that the case need not be turned over to hunt the name.

Do not send very large shipments at first until you can trust your man, and then it is better to have less at a time, and quick returns, if one wishes the money to use; and the apiarist can care for the bulk of his honey better at home than the commission merchant can, only seeing to it that he has it as fast as he can sell it. There is one advantage in sending large shipments—it is not quite so apt to be changed from one car to another, and consequently it is not so apt to be broken up.

If an apiarist has honey enough to furnish a commission man all he can sell, so that he handles no other honey, that also is an advantage both to him and you. In that case it is well to ship to him just before he is out.

Always write him kindly and firmly, as if you expected him to do what is fair and honest. Unless you are personally acquainted, never take a note from him after the honey is sold. If he has used your money, and says he can not pay you, it is a criminal act; for it is criminal to sell on commission and use that money to carry on his business. And if, after all care and painstaking, you are about to lose your money (which you will not do once in a hundred times, and perhaps never), you can put your case into the hands of a trusty attorney, to collect for you. He will charge about 30 per cent, which seems high; but sometimes he will do it for less, which probably would be cheaper for you than to make a trip to the city, if far off, and you are pressed with business at home. More than likely it would never have to be taken to court. If the attorney simply states the case to him plainly, the man would see that the better way would be to get the money for you. In Chicago, 5 per cent is rulable for selling on commission.

In case of a loss when honey is shipped, get a statement from the freight agent where the honey was shipped or started, the number of cases sent, and in what condition, and put it in a letter, with a statement from your commission merchant of the amount of loss, and inclose with it the original expense bill, and send to the freight agent where the honey was consigned, for him to forward to the general freight agent of the railroad company. Do not send in an extravagant bill, but just what the lost honey would bring you, and you will always, in time, get your pay—at least, such has been our experience. At one time we sent honey to two commission men. It was put together in the same car. One was received all right, and the other was badly broken up—so much so that 1500 lbs. was unsalable. In that case it was probably broken by the drayman, in transit from the car to the commission house.

In very cold weather, several days before we ship honey we bring the cases of honey into a warm room, so that they may be thoroughly warmed through before starting; and, if packed compactly in a car, we think it not so apt to break down as to ship frosty combs. At any rate, we like to have it in the very best shape when it leaves our hands. We generally try to ship at the close of a cold spell, just as the weather begins to grow warmer, so that the honey may not be out in the coldest of the weather. MRS. L. C. AXTELL.

Roseville, Ill., Oct. 22.

My good friend Mrs. A., you have given us one of the best papers on this matter of selling honey on commission that we have ever got hold of. I was obliged to smile several times to see how thoroughly you have taken hold of every little point; and I am glad to know that you enjoin more charity, and do not rush to the conclusion that *all* commission men are corrupt because a few of them are.

A GOLDEN BEE-HIVE DISSECTED.

NOTES FROM THE SADDLE, AMONG THE MOUNTAINS OF KENTUCKY.

The writer, being engaged in the lumber and stave business among the mountains of Kentucky, meets with some novel sights and experiences. Perhaps a short sketch of some of these will not be without interest to the readers of GLEANINGS.

Menifee County is the smallest, and, I dare say, the poorest county, in the State. It consists chiefly of extremely large hills or small mountains. Its mineral resources are fairly good, but entirely undeveloped. Timber is at present about the only available product. Large bodies of poplar, and much linn, besides a vast amount of other bee pasturage, doubtless makes it a good locality for bee-keeping, and one bee-keeper informs me there is a "right smart of bees in Menifee;" but, so far as I can learn, they are almost entirely in antiquated box hives, or the still more primitive section of hollow log called a "gum." I talked recently with one man who has been keeping bees for many years, and who has yet to see a queen for the first time.

A very common method of taking honey is to destroy the bees with brimstone, or, with bolder ones, by breaking up the hives. Many bee-trees are to be found in the woods; and it seems to me that, if the little fellows were as shrewd as intelligent they would all, long ere this, have deserted their masters and commenced business on their own account. They could fare no worse, with a fair chance of very much improving their condition by so doing. I thus far have met with but one man who has movable-frame hives. He has ten colonies, partly in box hives and partly in the notorious Golden hive, vended by Pickerl.

Riding along the road with "Langstroth on the Honey-Bee" strapped to the pommel of my saddle (to while away the time while feeding and resting my horse, you know) I came upon this little apiary, with hives scattered about on stumps and rocks in the yard. Such a sight, sandwiched in between high hills and forests, as it was, had a peculiar charm for me; and seeing the owner near by I cordially greeted him with "How do you do, sir?" and met with the characteristic Southern response, "How d'y?" After this, conversation ensued something as follows:

"How are your bees doing this season?"

"Oh, tolerable well."

"I see you have some Golden hives. How do you like them?"

"Oh! fine. They be the best tricks for keeping bees I've ever seed. One can take 'em all apart, and git right inside of 'em. They've got frames in 'em that come right out, and gives a chance to clean out the weevil that gets in 'em."

"I think I see they are marked patented."

"Yes, they're patented in 1877. Guess the patent 's about out on 'em. Man by the name of Pickerl 's bought the right for three States, Kentucky among 'em, and sold the right fur this county to Mr. ——, over on Slate. He sells

the right to make 'em fur one's own use fur $12. One man over here tried making some of 'em without buying the right, but they got on to it, and stopped him. Guess there'll be right smart of 'em made as soon as the patent 's out on 'em. Did you ever see any thing like 'em before?"

"No, sir, I never did; but I have heard of them, and am for that reason somewhat curious about them."

"Well, they be right smart ahead of the old boxes. I'll transfer all mine into 'em next year. I took forty pounds off 'n that 'n over thar, besides a good swarm I got of 'em. I count that purty good. Don't you?"

"Yes, that is good; but how do you take the honey off? and how do you get the bees off from it?"

"Oh! I forgot to say that they furnish a smoker and feeder with the right. And that smoker is just the greatest trick for handling bees that can be. I can just blow a little smoke into the hive, and it tames 'em so I can take out the frames, and they don't sting at all. There's two sets of frames. The ones below, we don't git much honey from. We jist blow smoke into the top frames, and that drives 'em down so we can take out the top frames that has the honey. Then we can just cut it out of the frame and put it back in again. But may be you would like to see inside of the hive. I will go get the smoker and show you."

I dismount, and tie up my horse. Crossing the fence into the yard I meet him coming with the smoker, puffing the smoke from cotton rags furiously. He turns the nozzle into the entrance of the hive; and if there is any virtue in smoke, those helpless little fellows got the full benefit of it. After smoking them vigorously through the entrance he partially removes the cover by hammering and jerking it loose, and renews the smoking business from this point. He then ventures to remove the cover entirely, and I take a look into the hive. But my sympathies being fully aroused on behalf of the frightened and half-smothered little tenants, I thought they had received punishment enough on account of my curiosity; and after giving time for the smoke to escape I suggested that he cover the little fellows up, and I would show him how to open a hive without smoke.

I crossed over to another hive, and, carefully removing the cover, I began taking out the frames, making a general examination of the construction of the hive, while my friend stands back and gazes in open-eyed astonishment. I then told him that a smoker is a convenient thing to have at hand, and sometimes serves a very good purpose when bees are disposed to be cross. But generally I have no use for it, and I regard his method of using it a positive cruelty to the little fellows.

And now, friend Root, what a sight the inside of that hive would have presented to *your* critical eye! Why, if that man were a careful and systematic observer his short experience should enable him to give all you veterans pointers unlimited on the much-vexed questions of thick vs. thin, and wide vs. narrow top-bars, end-bars, and bottom-bars; close vs. wide spacing; irregular spacing, device for exact spacing, etc., for certainly he is trying all of them, and that, too, in one and the same hive. Every frame was a law unto itself, as to thickness and width of bars, size, and position. Spaces ranged from 1¼ to 2 inches from center to center, and this variation was sometimes existing between the same two frames. The hives should have had two more frames in each tier than he was instructed to use in them. How it puzzled the brains of the little architects to accommodate their building to their master's plan, was but too plainly evidenced in the wonderful variety of combs they had built. Every style of comb was to be found there except straight.

The exact-spacing device was unique if not practical. It consisted of two lath nails driven in *one* side of each top-bar, projecting from half to three-quarters of an inch.

I closed the hive; and on being asked what I thought of it I told the gentleman that I had seen better, but that, with some very much needed improvements in frames, it would do, but that there was not a patentable idea in or about it, and that that part was a fraud. I then invited his attention to the book strapped to my saddle, and spent an hour in showing him through it, telling him of A. I. Root, the Home of the Honey-bees, the A B C book, GLEANINGS, etc., with the result that he concluded he *must* have the A B C; and if he found it as I stated, he thought he could sell lots of them. I gave him directions how to remit, and promised that I would have a catalogue and copy of GLEANINGS sent to him.

Wheelersburg, O., Aug. 21. J. M. BROWN.

It may be well to remind our readers that this Golden bee-hive is one that has a forged testimonial from Prof. Cook. Treat every one who tries to sell or talk Golden bee-hive, as you would treat a forger or counterfeiter.

RAMBLE NO. 32.

CONUNDRUMS; MAYDOLE HAMMERS, ETC.

When we left home it was our intention to return via Syracuse, Borodino, etc.; but "the best-laid plans of men and mice gang aft aglee." The force of circumstances found us away south of that line in Chemung Co. Here we found near and dear friends, and not many bee-keepers. Our relatives and even bee-keepers, wherever we went, were very hospitable, and did their best to entertain. Sometimes we were inclined to think they were overdoing the matter. With some of our talkative friends it was a steady run of talk until midnight. We couldn't get a chance to read the papers or write a letter; and even at meals, questions were answered with our mouth full of hot potato. Sometimes the man of the house and his wife would take turns. If he stepped out, she would step in; and when both went out, the hired girl was sent in.

Now, there is quite a difference in the quality of hired girls. Some are decidedly handsome and entertaining; they read the papers, read the poets, and play the organ, and sweetly sing. With such a queen of the kitchen we didn't mind much how long the heads of the family did stay out. The smartest hired girl we met on our journey was not only musical, but full of riddles, and let one drive at us the first thing. "Why do a dog's lungs give out first?"

After many futile efforts we gave it up.

"Because," says she, "it is the seat of his pants."

Now, we had been sitting around in chairs rough and smooth, and we surmised that our pants were getting rather thin in some parts, and we surmised that this girl was insinuating; but before we could change the subject she let drive another:

"If the Devil loses his tail, where will he go to get another?"

"Don't know, unless he would come to Millport and hunt up a hired girl."

"Oh, no!" said she; "this is a no-license town. He would go where they re-tail spirits."

The hired girl's question may not entertain your readers, however, and we will turn our

attention to the leading bee-keeper of this place, Mr. Jim Stewart. He was greatly in favor of the Italian bee, and we immediately commenced discussing their merits. He had about twenty colonies, and said every one of them was fine Italians. Upon examination, the first swarm we pronounced genuine old-fashioned blacks.

THE RAMBLER TRYING TO GUESS A RIDDLE.

"Oh, no!" said he; "*you* are mistaken. Italians are very dark until the third year; then they get their yellow bands."

"Then you expect this colony of black bees to turn yellow in three years?"

"Yes, that has been my experience with them."

"Did you ever send for an Italian queen and introduce to your colonies?"

"No, sir. I leave such fancy processes to my neighbor, Nat Goodwin, who lives about two miles down the valley."

Our friend's three-year theory was easily explained. The wonder is, that his neighbor's Italians did not change his blacks to Italians at a more rapid rate. Nothing we could say would shake his three-year theory.

In Elmira we made a short stop. The only bee-keeper we called upon here was Mr. Rutan, a carpenter by trade, owning about forty colonies. These were quite near the sidewalk, with no intervening fence, and we were informed that pedestrians were hardly ever disturbed or stung, and Mr. R. seemed to be enjoying his right to keep bees in a city. His hive was patented, and has the high-sounding title of "King of the West." A neat honey-house stood convenient to the apiary, and was well filled with honey and fixtures.

Our next stop of any importance was in Norwich, Chenango Co., where a hammer factory attracted our attention. The Rambler's cousin has much to do with this factory, which made it the more attractive; and as every bee-keeper is a wielder of some kind of hammer, perhaps a few facts about this establishment will interest.

Several years ago, David Maydole, an humble blacksmith, invented the adze-eye hammer, and made one for himself. A carpenter saw it and wanted one, and he was supplied; then several men who make nail-driving a business wanted hammers. Thus orders continued; more men were employed, a new shop erected, machinery invented, and the Maydole hammer-works arose to their present proportions, occupying a large brick building, and employing over one hundred men. Over sixty different styles of hammers are made, and tons of steel are manufactured into one of the best hammers known; for a hammer with the Maydole mark upon it has a solid reputation. The hammer was never patented; and during our trip, everybody was harping on the one string, "dull times." But in answer to our question as to dullness in the non-patented-hammer trade, I was told that the business had never seen dull times. Their orders were away ahead of their manufacturiug capacity, and they were preparing to enlarge their works. Mr. Maydole now rests in the cemetery, but his works live after him. THE RAMBLER.

Friend R., there is a bright moral to your story of the Maydole hammer. The originator was an energetic, go-ahead son of toil, and he reaped his reward. Opportunities are constantly opening up in almost every avenue of work, to go and do likewise. "Seek, and ye shall find; knock, and it shall be opened unto you."

CLOSED-END FRAMES.

A FURTHER DISCUSSION OF THE SUBJECT.

I had begun to write about a few results of moving bees with the wide and narrow end-bars, and the use of reversing wires, when today I received Oct. 25th GLEANINGS. In it I see that you have nearly if not quite decided on the wide end-bar and the follower. I have in my possession a letter from you concerning a hive I wrote to you about, and almost fac-simile in parts; and in it you say that it is too complicated. Now, I wish to give you two points that, within the past five years, I have had to deal with enough to make me cautious. First, that the follower must not come nearer than ⅜ of an inch to the bottom of the hive, or there will be some expensive mashing some time of a queen. Second, if you allow a half-inch space between that follower and the hive side, one of these days there will be some comb built in there during a sudden flow of honey, when it is least expected.

On page 745 you have pictured a cross-section of nearly the hive that I have used and seen used—the staples and all. Now, I must say this for hives that are to be moved; and, in fact, for any other purpose. Those staples are not worth a fourth what your reversing wires are. I have carted bees around from place to place for over 15 years. Until I obtained some of those reversing wires, I have not been without more or less frames and combs being broken from the top-bar. A sudden jar will start them somewhere, and those jars come when least expected; but with the reversing wires, all the strain comes on the center of the end-bar; and if the combs have been properly handled they have been reversed enough to make them solid in the frame.

Another feature of the wire is, that the spring in the end of it is of value in moving because of the give that there is to it. I have just been moving quite a number of hives to have them in a safe place for winter; and although all the narrow hanging frames were wedged as tight as they could be, some of the all-wood top-bars were started, as they have been in years before. Many of those with tin corners needed to have the pliers used on them to straighten them; but those with reversing

wires were in no way injured, and some of all sorts were on the wagon at the same time.

Now to go back to the hive you are thinking of: 12⅛, inside measure; wide, make it 12¼ or 12⅜, and use two followers ⅜ or less thick, with the lag strips on both sides at the ends of the follower, and a ¼-inch wedge. Those followers will and do spring. I have used the follower with the narrow frames for the past 12 years, alongside of hives without it, and the follower is worth more, from the ease that it makes in handling, than it costs, every season; and with two followers in the hive with wide end-bars, the two followers are all ready to contract the hive to the combs in the center, be it 3, 4, or 5, for their winter and spring packing.

There are a great many who will say, "Too many loose pieces;" but actual use makes me think differently; and trying the Hoffman-Langstroth frame since 1878, along with the others, and the wide end-bar since 1881, I must say I will have only the wide end-bars for me on the new frames in the future; and I want them to be hanging frames too. I have used, since 1886, 1200 hanging frames with the reversing wires on; 300 of them were new wide-end-bar reversing frames, and they will continually replace all others. In 1884 and '85 I helped to make and use 45 hives that used the L. frame with 1⅜ end-bars, top and bottom bars 17⅜ long, held in place by tin rabbets, top and bottom fastened by hooks. This made a perfect reversible hive and frame, separately or together; but, no more of them for me of the L. depth, and all the hive to reverse. They are too slow to handle, and are not as satisfactory as are the hanging frames. Neither do I want the standing frame, although there are plenty of nuclei to be seen in several places made by setting up two or three wide-end-bar frames with a board on each side and a string tied around. It is fun sometimes to save a lot of cells in that way. It is simply two side panels and two or three combs in closed-end frames, and two wire springs from telephone wire bent thus ⌴ — one snapped on to each end to hold the side panels in place. These side panels are just followers 9⅛ wide, 17¾ long, with ⅛-inch strips nailed on the ends on both sides. The back ends of the frames rest on the board if you like. They all pile away nicely in the fall and winter when not in use.

I also see that you have taken note of the thick top-bars for the prevention of the brace-combs, and that the scant bee-space is another preventive of the brace-combs and climbers between the crate and brood-frames. I have been using both thick and thin top-bars; but when the bee-space above the brood-combs was ¼ inch, the brace-combs were missing. Unless the space between the brood-combs and the space between the two sections corresponded, then there would invariably be a little ladder built; but with the inch-wide top-bar there is far less chance; and an inch-wide top-bar makes more difference than the thickness of it does. I have used top and bottom bars $\frac{5}{16}$ thick up to 1⅛ thick, and I have watched those used by others; but the spacing above the combs makes more difference than all other causes put together. I became convinced of the difference of the space connected with brace-combs in the summer of 1884; and also that the scant space, when the two stories were used for extracting, this shallow space would be filled nearly or quite full of propolis. Where I have cared for bees for the past 12 years there have been a few localities where cedars, hemlock, tamarac, pines, and juniper abound, and in those localities, after the summer harvest is by, the bees take delight in gluing every joint tight that they can get the gum into. So there are two evils to try to dodge—the comb-braces on the wide space, and the propolis on the narrow space. Which is it to be? and I am not the only one who keeps bees and is between the two fires? H. L. JEFFREY.

New Milford, Ct., Oct., 1890.

By consulting our sectional drawings on page 745, we find that we left ⅜ inch below the bottom of the follower, so we are all right on that score. About those staples: We have been experimenting some on the driving of the same in closed-end frames; but on account of their twisting in driving we have decided that a good substantial wire nail, with a finishing head, such as is used by Mr. Tunicliff, is better. I agree with you, that a closed-end frame for the Dovetailed hive should be made to *hang* rather than to *stand;* but I shall have to disagree with you somewhat in regard to reversing-wires. These wires will all stick out so as to require a space between the ends of the frames and the end of the hive. For closed-end frames it is very desirable, and, I might almost say, necessary, that the bees be excluded from the side next to the hive, otherwise they will propolize the outside as well as the inside places of contact between the uprights. E. R.

SPACING FRAMES IN CALIFORNIA.

A COMPARATIVE TEST BETWEEN 1⅜ AND 1½ INCH SPACING; A CONCLUSIVE RESULT FOR 1⅜.

I will give you some of my experience with spacers, spacing, and moving bees. About ten years ago, when I owned about 40 colonies of bees, I thought something to hold the frames the right distance apart would be a good thing, so I bought a lot of blind-staples and drove two in each end-bar on opposite sides of the frame, in all the frames in my apiary. I extracted from the brood-chamber then, and soon found that the staples would not do in frames that had to be extracted; so I pulled them all out and have not tried spacers since. If I were answering the question on page 675 now, however, I would say, "Yes, if you have learned the business so you do not need to look over all the brood-combs every week to know that a colony is doing well." A frame like the modified Hoffman would be less bother through the season than it would be to fasten all the frames twice a year for hauling. This applies to brood-chambers only. Super frames should never have any projections, and should never be over ⅞ wide.

I use a device in hauling bees that holds the frames, on the same principle as the Hoffman frame—that is, by making a solid bearing for three inches down the end-bar. I think it was invented by R. Touchton, and is made as follows: One piece is ¼ x ⅞, by as long as your hive is wide inside; nine pieces ½ x ⅞ x 3 inches; nail the nine pieces to the first piece in the shape of a garden-rake, 1⅜ inches from center to center, and shove these teeth down between the end-bars. Before I came to California I always spaced my combs 1½ inches, and, like a good many others who are spacing their combs that distance now, I thought it was right and best. When I came here I found most bee-keepers spacing their combs 1⅜ inches. I was prejudiced against that distance, and changed

200 colonies to 1½, and ran them that way for two years, side by side with others spaced 1⅜. The hives spaced 1⅜ reared more brood, stored much less honey above the brood in the brood-chamber, and consequently stored more in the supers, built less brace-comb between the top-bars, and reared less drones. I changed all my hives back to 1⅜ centers, and it would be a hard matter to induce me to even try 1½-inch spacing again. I say that 1⅜ is right for the brood-chamber, and from 1⅝ to 1¾ is right for the extracting super, with a queen-excluder between super and brood-chamber.

My honey-crop this year is 27,000 lbs., all white and thick, and put up in new 5-gallon cans, two in a case.

There is a war going on in California, between new honey cans and cases, and second-hand oil cans and cases. The new cases cost 90 cents each, and the oil-cases cost 40 cents each. Dealers keep advising bee-keepers not to use oil-cans, and yet they will not pay the difference in cost for new cases. If it were not for the fact that oil-cases are bound to hurt the market for California honey, we would all put our honey in them, for we can not afford to pay from one to two hundred dollars a year to have our honey look nice, and not get any more for it.

Fillmore, Cal., Sept. 26. J. F. McIntyre.

UNITING BEES, ETC.

FRIEND DOOLITTLE GIVES US MINUTE DIRECTIONS JUST HOW TO DO IT.

I have just been uniting up some weak colonies of bees, or, rather, large nuclei, as they would be more appropriately termed; and I liked the way I did it so well that I thought the readers of Gleanings might wish to know how it was done. In the first place, the queens in a part of the colonies were taken away to fill late orders; but if I did not wish to use the queens not needed in the united colonies, I killed the poorer ones, as I considered them; for, so far as I have practiced this plan, I find that queenless bees are less inclined to quarrel, and are more disposed to stay where put, than are those having queens. Having the queens disposed of, from the colonies which are to be united, wait three days to a week (three days in any event, so the colonies may realize their queenlessness) for some cool cloudy day when it is from five to ten degrees colder than is required for the bees to fly, when you will find the bees all clustered compactly, something the way they are in winter. When taking the queens away, take all the combs from the hives but three (the three which contain the most honey), and spread these combs about three-fourths of an inch apart, setting them out about two inches from the side of the hive, so that the bees may be all clustered on these combs instead of hanging to the sides or any part of the hive. The hive which is to receive these bees and combs is to be also prepared beforehand, by taking away all the combs but three or four, those being left being the ones having the most honey in them, said combs being placed close to one side of the hive.

When the right day arrives, light your smoker and put on your veil, for in following the plan described you may not be able to use the hands to get a stinging bee off the face as you otherwise would; for, during a part of the operation, both hands will be so employed that you can not use them at any thing else. Now go to the hive having the queen, and uncover it, giving the bees a little smoke to keep them quiet, and leaving the hive open so that you can set the other frames right in without any hindrance. Next go to one of those that you took the queen from, blowing plenty of smoke in at the entrance while uncovering the hive. Blow a few puffs of smoke around the combs and over them, when the smoker is to be set down, the two front fingers placed between the two first frames near their ends, the large fingers between the second and last frames, while the third and little fingers are placed beyond the third frame. Now close up with the thumbs and all of the fingers, thus lifting the frames and cluster of bees all out of the hive at once, when they are to be carried to the open hive where they are to stay, and sit down in it all together, close up to the frames of bees that are in this hive. Go back and get the smoker, and blow smoke enough on the bees to keep them down, when you can arrange the frames, division-boards, and hive, as you like, without very many, if any, bees flying. Should a few bees stick to the hive that you took the frames out of, bring the hive to the one having the united colony in it, and brush them out on top of the frames, as they will be pretty well chilled by this time. In doing this you will have to smoke those in the united colony pretty well, or many will fly at you, for these partly chilled bees will throw their poison out on their stings so that the scent of it will anger the bees that are in the united hive. If you fixed all as it should be when taking the queens away and preparing for uniting, and smoked the bees as I have told you, there will be only now and then one that will require this last operation, as all will be snugly clustered on the combs. Close the hive as soon as you have things fixed to suit you, when you are to remove every thing from the stand of the colony that was united with the other, so that, when the bees come to fly on the first warm day, they will find that all that looks like their old home is gone. Some bees will fly or hover over the old spot where home was, but, not finding it, will return to the united colony. In this way I never have had any quarreling of bees, nor any queens killed; and it is so simple and easy that I like it much the best of any plan of uniting bees late in the fall.

DEAD BEES AT THE ENTRANCE.

A correspondent writes thus: "We have had a week or more of very cold weather for the time of year; but yesterday was so pleasant that the bees came out from the hives. This morning I found great numbers of dead bees at the entrances. Was it so cold that they died before going back in, or what?"

No, the trouble was not that it was too cold when the bees were flying, for bees rarely fly at this time of the year when it is too cold for them to get back. Really there was no trouble, unless it was that your bees were not properly protected from the cold during the previous cold spell. I would not be afraid of guessing wrong if I said that your bees are in single-walled hives; for in chaff hives many bees do not die during the first cold snap, as they do in single-walled hives; for I take it for granted that the dead bees you found out at the entrance were the bees which had died in the hive during the cold spell you speak of, and that the live bees had drawn them out at the entrance on this pleasant day which you speak of. Now, while a chaff hive keeps many bees from dying early in winter, yet I have an idea that these bees that do thus die on the approach of winter are nearly or quite worn out by old age, hence they do not keep pace with the receding cluster, and are thus carried off early in the season, yet are really of no great account, although making quite a showing at the entrance, to one not knowing the cause of their being there.

Borodino, N. Y., Oct. 29. G. M. Doolittle.

THE INTERNATIONAL BEE-ASSOCIATION.

A FEW NOTES OF THE PROCEEDINGS, BY ERNEST.

On account of the very poor season, and the failure to get reduced rates, the most of us predicted, in our own minds at least, that the meeting at Keokuk would not be as largely attended as the former ones. But we consoled ourselves that what it would be lacking in numbers would be made up in enthusiasm. Well, we were very much disappointed as to the attendance, and agreeably so. If I am correct, there was the largest enrollment of members ever made in its history, and I heard on all sides that it was the best meeting ever held in the history of the association. While the one at Brantford had, I believe, a larger daily attendance, yet the paid membership was greater at Keokuk. It was surprising how the bee-keepers of the Mississippi Valley and adjacent territory turned out. Well, the fact was, that not all of them had had a poor honey crop, and, of course, they came. Others had a poor season as usual, but they could not afford to miss the opportunity. There were several from Colorado; one or two from Arizona; two from Canada; some from Kansas, Michigan, Ohio, Indiana, besides a good representation from the border States—Illinois, Missouri, and the home State, Iowa. The failure of the honey crop, and the absence of reduced railroad rates, was more than counterbalanced by the persistent and efficient services of the secretary, Mr. C. P. Dadant.

The two representatives of GLEANINGS had figured to be on hand at the opening of the first session. The train being behind time, we did not arrive until near the close of the session. The question-box had been opened, and your humble servant whipped out his note-book and pencil, craned his neck, and proceeded to jot down a few things that seemed to him to deserve special mention. Let me say right here, that this report is far from being complete. It contains only a few of the good things said and done.

At the latter end of the morning session, the first question I heard was, "What is the relative consumption of stores as between sugar syrup and good sealed honey?" It has generally been thought that there is but very little difference in favor of either; but by some careful experiments, President Taylor had found that there is a decided difference in favor of the sugar syrup. On honey the bees are very apt to become uneasy and excited; and careful weighing showed that the consumption of honey was much more than the consumption of the sugar syrup. I think he said the bees would consume about a half more of honey than of sugar. Some were inclined to take exceptions, on the ground that the experiments were not carefully conducted. I remember that W. F. Clarke asked the president *why* honey excites the bees more, and then went on to give his reasons for his disbelief. The president interrupted him by saying, "Let me ask *you* a question. What effect does honey have on you?"

"I can not eat a bit of it," said Mr. Clarke; "honey gives me colicky pains."

The convention roared with laughter, and Mr. Clarke resumed his seat. I do not give this to show that Mr. Clarke was beaten in argument, but simply as a sample of the pleasant bantering back and forth.

CANE OR BEET SUGAR—IS THERE ANY DIFFERENCE?

Mrs. Harrison asked whether there was any difference between cane and beet sugar. Opinions were various. The president argued that there was a difference. A. I. Root, Mr. Dadant, and others, claimed that there was none. Mr. Secor cited the *O. Judd Farmer*, to the effect that cane and beet sugar are precisely one and the same thing. I did not say so at the time, but somewhere I read (I can not say just where I saw it), that the amount of cane sugar produced is very small indeed compared with that produced from the beet. If this be true, the probabilities are that the sugar on our tables, and that which we feed our bees, is *beet* sugar. Mrs. Harrison stated that the *British Bee Journal* was authority for saying that there is a difference between the two sugars, and that of the two the beet is inferior. Oh how we missed Prof. Cook at this point in the convention! We all knew he could help us out. Well, it is not too late yet.

EXTRACTING HONEY TO FEED SUGAR.

A further question was put as to whether it would pay to extract the honey, and feed sugar. It was argued that it would not, because the stores usually left for winter are from fall sources; and if the bees do consume more, nothing would be gained, from a dollar-and-cents point of view, by extracting and feeding. R. McKnight thought any one who would advocate any thing to the contrary was a fit subject for the penitentiary. Dr. Mason quickly got up, "Then I am a fit subject," and sat down, amid roars of laughter—another sample of bantering. Along in the afternoon we listened to the

PRESIDENT'S ADDRESS.

It was an able document. He called attention to the lessons of the poor season. There are a great many outgoes and expenses, and the bee-keeper becomes discouraged. Total failures are expensive; but, he argued, we are not paying too high a price for the benefits of that which will follow. In the convention there should be a free discussion—no personalities. Instead of saying, "In my opinion," state what you know to be a fact, leaving out the matter of opinion, because that is understood. Free discussion leads to the best understanding. He thought the floating character of our association a bad feature. There is no fixed membership. Even the officers may not be members next year. Why not have the association incorporated under the law, and members contribute, whether they go or not? He advised that we consider the matter of the World's Fair, and that immediate action be taken.

The address was not discussed immediately, but a committee was appointed to consider some of its salient points. For further particulars, see Myself and My Neighbors, elsewere.

BEE-PASTURAGE OF THE UNITED STATES.

A paper was then read by A. I. Root, on the bee-pasturage of the United States. He alluded to several of the promising sources of nectar, and gave, incidentally, a talk he had had with Mr. Draper and Mr. Hambaugh, on the train, in regard to Spanish needle. Both of these gentlemen stated in convention that they live not a great way from the Mississippi Valley, and had secured a large crop of honey from Spanish needle. In fact, this seemed to be a never-failing source. Many of their customers prefer it to clover. It is very thick, of good color, and of delicate flavor. Mr. Hambaugh had secured in five days, from one hive, 73 lbs. I was surprised to learn that the Mississippi Valley, along in these regions, was covered in waste places with Spanish needle; for it seems there are a good many bee-keepers who get a nice paying crop from it. It is a significant fact, that in one locality a honey-plant may be a valuable source of nectar, while in others it may be worthless: so with Spanish needle. In the matter of honey sources we should take into

consideration locality. This point was emphasized by Mr. W. F. Clarke. Mrs. Harrison, in crossing the Mississippi, had discovered hundreds of acres of Spanish needle, and the bees were just rolling in the honey.

BUTTON-BALL.

Mr. S. A. Shuck had no Spanish-needle, but button-ball honey. It comes in bloom with him about the 5th of July. It is of good color, and yields a good quantity. Under favorable circumstances he had secured 7 lbs. per day per colony for eight days.

THE CHAPMAN HONEY-PLANT.

A. I. Root related that Prof. Cook had tried it on an extensive scale, and that he (Cook) had concluded that it was not a profitable bee-forage for cultivation. Mr. Axtell had tried it, and it yielded honey, but he did not think it paid.

QUESTION-BOX.

On the evening of the first day the question-box was opened again. The question, "Can poultry-keeping and bee-keeping be profitably combined?" Dr. Miller was called upon to answer. He said he did not know very much about it, but he would read a letter from a friend, on the subject. All the reporters, anticipating something solid and serious, grabbed their pencils and began jotting lively. Very seriously and innocently he read Sockerie's experience with a sitting hen. Very soon the reporters and the rest began to "catch on" to the hoax, when they perceived that it was a side-splitting impersonation rather than a serious detail of facts. Those of you who have had the pleasure of hearing the doctor deliver some of his comic pieces, can get something of an idea of the fun we had. Stripping the little story of its German brogue and its funny hits, a certain Dutchman, not very big up and down, but big all around, proceeded to set an old hen in the barn-loft. He could not reach up to the hen's nest with a hatful of eggs in his arm, so he stood upon a barrel. Perhaps you know the rest. The head of the barrel gave way, and his fat sides telescoped into the barrel, but the nails sticking out prevented his wife from pulling him out. I do not know, but perhaps we had better give the whole chicken story at a future date, so the doctor will please present it to our readers.

Another question was, how to get rid of black ants in the apiary. Pour coal oil, coal tar, or diluted carbolic acid on their nests.

My note-book does not record very many things said and done at this stage of the convention. I presume I got tired, or, what is more probable, there was so much fun that the pencil could not properly record it.

THE "DON'T KNOWS" OF BEE-KEEPING.

The next morning we listened to a spicy and well-written essay—in fact, a model for bee-conventions, from Dr. C. C. Miller, entitled, "What I Don't Know about Bee-keeping." He did not know how far to space combs; whether there is greater or less loss from wintering indoors or outdoors; whether poor seasons are valuable to bee-keepers or not; how to prevent brace-combs; whether fixed frames are practical or not, and how to prevent swarming; and, "'I don't know'—but I had better stop." And he closed with a heary applause. His "don't knows" set us to thinking. When a practical chord is touched, how a convention will respond! The doctor touched a number of practical chords, and the one singled out in particular was very suggestive.

HOW FAR TO SPACE COMBS.

It was argued that Nature spaces them about 1½ inches. But the opinion seemed to prevail, that, because Nature does so, it is no reason why bee-keepers who wish to properly *control* brood-rearing should do so. One important fact was brought out, that several who had formerly used 1½-inch spacing had discarded it for 1⅜, but nary a one was there who had tested both ways of spacing, and had settled on 1½-inch. Testimony was not wanting, to the effect that more brood could be produced on 1⅜ spacing. Wm. Lyon, of Burlington, Ia., said that, when bees wish to go into sections, space the combs closer. By so doing, bees are less liable to swarm, and would the sooner put the honey above. He even went so far as to say that thus he almost entirely does away with swarming. Dr. Mason and A. N. Draper had used successfully spacing as close as 1¼ inches from center to center; but the convention seemed to feel that that was going a little bit to the other extreme. Mr. L. C. Axtell argued for 1⅜, but he did not have very good success with closer spacing. He has a mellow soil, and occasionally his hives would tip one side and the other. He does not wire the combs, and sometimes combs would bulge toward each other by the tipping of the hive, making less than 1⅜ spacing in places. He noticed that brood-rearing was curtailed in said places. He used fixed frames, closed-end Quinby, on 1⅜ spacing, and liked it. B. Taylor had used 1½-inch spacing, and had changed to 1⅜. The latter he had used for 26 years, and saw no reason for changing.

There was a good deal of bantering in regard to Dr. Miller's expression, "I don't know." The doctor, having been a bee-keeper for many years, has learned that there are a good many other things that he does not know. While we were arguing about what we *did* and *didn't* know, our old friend J. W. Bittenbender, of Knoxville, Ia., arose, and repeated one of Josh Billings' sayings: "What is the use of knowing so much, when so much you know ain't so?" and sat down without comment. Verily, brevity is the soul of wit, sometimes.

[*To be continued.*]

THE DOVETAILED HIVE.

WHAT HENRY ALLEY HAS TO SAY OF IT.

During the last thirty years, which comprise my experience in bee-keeping, I have given a good deal of study to the bee-hive question. Some twenty years ago I obtained a patent on a hive. I believe that that hive was the first double-wall hive used in this country—certainly the first patented double-wall hive. Since that time I have constructed about a dozen different styles of hive; but at no time did I lose sight of several important features that, it seems to me, should always be found in all good bee-hives; namely, the Langstroth standard frame, with a wide and thick top-bar. What I call a bee-space was another important feature always retained in all styles of hives used in the Bay State Apiary. Not over ¼ inch, and slightly less, is what I consider a proper bee-space between the tops of the brood-frames, or whatever is used over them, whether it is a section-case, honey-board, or what not. When more space is given, brace-combs are found, as well as propolis, etc.

Early in October I visited a large display of bee-hives at the Rhode Island State Fair. I think there were not far from thirty different styles of hives on exhibition. There was a hive from about every dealer in the country who had ever made or invented a hive. I looked the entire lot over, and saw but one hive that seemed to combine many good features, and this hive

lacked but one thing to complete it. This hive was Root's Dovetailed. The thing lacking was an outside case for winter and spring protection. With that addition I should consider the Dovetailed hive as good as the Bay State, as then it would combine nearly all the good features of the hive we use in our apiary. Bear in mind, we use, in the Bay State hive, both the closed-end and standard Langstroth frame.

I have had a good opinion of the Dovetailed hive; and now that the out, or winter case, is to be adopted, it seems to me it must prove to be one of the best hives in use.

I don't want to say one word against the other hives I saw at the R. I. State Fair; but it is a wonder to me that such hives are used by any one. The lumber-bill for 100 such hives, it seems to me, must be immense.

PACKING BEES FOR WINTER.

I may be radical on this point, yet it does seem to me that, with any good double-wall hive, no packing is necessary in winter.

Now, Bro. Root, as you are a strong advocate of packing, why not try an experiment? Why not place 50 hives in a row, pack each alternate colony, and let the others winter with the air-space open?

I know from past experience, that the unpacked hive will not only winter better, but will do the best the following season, and come out stronger, cleaner, and better in every way in the spring. Here in New England, where we never have more than three days of settled weather at one time, we need no packing, save a mat or cushion over the bees, to absorb moisture and prevent too much draft up through the colony and combs. HENRY ALLEY.

Wenham, Mass., Oct., 1890.

Thanks for your testimony for the Dovetailed hive. When it was originally constructed, we did not have in mind any pet theories, but simply endeavored to combine in one hive the demands of the largest and best and most practical bee-keeping, having in mind due reference to economy; and that these reqirements have been met is evidenced by the "carload" demand for it. You are right. A wide and thick top-bar with scant ¼-inch bee-space, is among the necessities of a good hive.

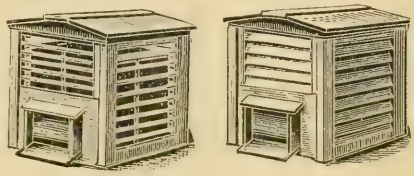
I am greatly pleased to get so good an authority as yourself for an outside protecting shell for winter; and I am not sure but that your remark in regard to *packing* versus *air space* is true. I have, for a year or so, hoped that it might be so; and facts are beginning to come in with the proof. If we can leave out packing (I say *if*) and yet obtain as good results, it will be a blessing to bee-keepers. All single-walled hives can be cheaply converted into double-walled winter hives; and then, too, during summer these winter cases will be worth all their cost for shade when placed over supers while on the hive. Mr. Elwood uses just about such a case over his supers, and yet whole apiaries of his were exposed to the direct rays of the sun. They are better than a shade-board, because it shades the *sides* of the supers as well as the top. Here is an article from J. A. Roe, in a similar strain:

THAT OUTSIDE PROTECTING SHELL.

I was very much interested in W. A. King's article on page 697, and in Ernest's comments, especially where he speaks of winter cases, as I was then getting out a descriptive circular of what I call the "hive-protector." This is made high enough to take in a single-walled hive, with two cases of sections or an extracting super, and large enough to set four chaff dummies around the brood-nest for winter; or, what I consider better and more convenient, is the band suggested by Ernest for his winter case. The hives are to be left in the protector the year round, as they afford protection from the hot sun and cool nights in the summer time. But, as A. I. R. says, when these cases are made good and substantial, and all complete, it brings the cost to about the same as a good chaff hive (including the cost of inside hive), so it is not so much a matter of economy as to whether this arrangement is more desirable than a chaff hive. As the inside hive can be readily lifted out, this will be much easier than lifting heavy chaff hives where new swarms are hived on the old stand, or any operation requiring hives to be moved; and with the chaff band made from thin lumber, and permanently packed, it is but the work of a moment to set this over the brood-nest, put on a top cushion, and you have as good a chaff hive as there is. Where bees are wintered in the cellar it is a small job to give them spring protection with this arrangement. A great many neglect to protect their bees, and I think those who do find it an unpleasant task, to say nothing about the unsightly appearance of the apiary, and the litter when unpacking in the spring, or the injury that may result from leaky covers. J. A. ROE.

Union City, Ind.

We take the following description of the cuts from his circular:



J. A. ROE'S OUTER COVERING FOR SINGLE-WALLED HIVES.

I desire to say a few things about bee-hives, and hope you will give me a patient hearing. "Which is the best general purpose hive, i. e., the chaff or single-walled hive," always has been and perhaps always will be an unsettled question. That both have their good and bad points, I think most will admit. Let us see: The single-walled hive does not cost nearly so much as the chaff hive; it is much easier handled (and this is quite an item where new swarms are hived on the old stand), and is a much cooler hive in summer. I know a great many will not agree with me in this last statement, claiming that a chaff hive is cooler in summer. But how can it be, when we know that any thing that will confine the heat in the winter will do the same in the summer? and good authorities say the heat of the brood-nest during the hot season is nearly 100 degrees. If this be true, it is also a fact, that, the thinner the hive up till the time the outside temperature reaches that of the inside temperature, the better can the heat escape; and the thicker the hive, the more will it be confined. I have noticed that bees always lie out much more in chaff hives; and I fail to see the difference between wearing an overcoat to keep the heat out and keeping bees in chaff hives to keep them cool. * * * The hive-protector makes a chaff hive out of any single-walled hive for winter, and gives plenty of shade and ventilation for summer. It is made of such dimensions that a single-walled hive with two cases of sections can be set inside of it, and four chaff dummies, three inches thick, set around the hive (these dummies are made of thin lumber, and should be kept in the dry when not in use). The hives are not to be fastened in the protector, and it does not interfere in the least with the ordinary

handling of single-walled hives, such as hiving new swarms on the old stand.

The protectors are to be leveled up and located permanently; and when hives are to be moved, lift the inside hive out. Shade for the hives during the heat of summer, I think, is quite an advantage; but shade-boards are unsightly, and frequently blow off. The hive-protector not only affords perfect protection from the hot sun, but also from cool nights, when the bees are liable to be driven from the cases. The protector is made in two styles, the one with shutters, and the other using thin lumber for siding. I do not advise the shutters, on account of the extra expense, as just as good ventilation can be secured by raising the lid an inch in the hottest weather, when the heat of the inside hive will cause a current of air to pass up around the hive.

THE HONEY CROP OF SOUTHERN CALIFORNIA.

BEES AND FRUIT; VALUABLE TESTIMONY FROM A BEE-KEEPER AND FRUIT-GROWER THAT BEES DO NOT TOUCH SOUND FRUIT; YELLOW-JACKETS THE GUILTY CULPRITS.

I caught particular fits for predicting in GLEANINGS that Southern California would produce but half a crop of honey unless we had later rains. Now, although every one was watching and waiting, hoping and praying for them, they never came. Then they got mad at me—especially the honey-dealers—and pitched into me. Mad? Yes. What right had I to call the attention of the world and his brother to the possible failure of the honey crop? Would it not be bad enough when the world *had* to know it? Why alarm the trade, and send up the price of honey only to collapse again? Besides that, the failure would never come. Look at the face of nature! Was any thing ever more promising? I looked. Gentlemen, I admit the wide earth is covered with a carpet of matchless green. The alfilaria, the buttercup, and the daisy, with a thousand other flowers to the deponent unknown, are fighting for standing-room all around me. The king of the honey-plants—the black sage—all along over the mountain-sides, throws out its sheen of white purple snow. We look around us, and the eye is "dazzled and drunk with beauty." The air is loaded down to the hub with the perfume of the flowers. We feel all over that it is simply ecstasy to live. Any man can jump up and yell—yell with pure and unalloyed delight; yell that he has such a country—all his own; yell that he has a home to go to, and doesn't have to board out. But in two or three weeks there will be a change—all these flowers will become thirsty. They will look up all the day long to the pitiless sky, and yearn for a little water. The stalks that now bear up their load of bloom so proudly will creak in the wind, and moan for a little water. The leaves will reach out to you with a pallid and appealing look, and seem to ask you with such beseeching tenderness to give them but one drop of water. Were you ever starving to death—starving for water? Were ever your lips parched and black—your teeth covered with a thick coat of gum for want of water? No? Then you know nothing about it. I imagine it is about the same way with the flowers. We see their pallid faces—see their fading forms—see their daily change till they droop and die. But we know not whether they have a consciousness of the change. Now, gentlemen, have any of you got a little patent pump about your clothes, that will water all this broad expanse of Southern California? No? Then look out for the honey crop. Those who are close to large alfalfa fields *may* get a good crop—as they mostly do. But all who depend upon wild feed—as nearly all do—will suffer indeed. And we did suffer.

BEES AND GRAPES.

I have seen Prof. McLane's experiments with bees and grapes called in question by some of the bee-papers. But I think I could convince the greatest skeptic of their truth and reliability. We are now picking our grapes and making our raisins. Now, friend Root, walk up into the vineyard with me. You see we are cleaning the grapes at tables. You see and hear thousands of bees on the tables, on the long line of cleaned grapes, on almost every vine around you, and flying around your head. Take this bunch of grapes. You see half a dozen bees busy on it. They are sucking the juice from the half-decayed grapes, and those that have been picked by birds. You know already that a bee will suck the juice from rotten or broken fruit. But here is another bunch—the grapes about as large as your best eastern plums. Every grape is as pure, perfect, and unblemished as if it just came from the hands of the Creator. Hold that up for five, ten, fifteen minutes, and not a single bee will alight upon it. Oh, yes! they will fly round it and snuff at it, but they won't alight on it. Why? Simply because there is nothing for them to get, and they won't try to pierce a grape. Now you are satisfied that no bee is going to alight on that bunch. But pull one single grape off it, and see the change! There is a large, luscious grape at the top—near your hand. But, hold! Have your mouth wide open and ready to shut the door when the grape goes in, or you may have a small family of bees in there too. You must do this or take a walk once or twice around that grape before eating it. The moment the grape leaves the stem the bees will dash at both of them for the fresh juice. These facts, which I have tested again and again, prove that bees do no injury to grapes or fruit. But yellow-jackets can and do pierce the grape. They will, in cool cloudy weather, cut the cheese-cloth into shreds and go in and destroy grapes or raisins.

RAISINS, AND HOW THEY ARE PREPARED IN CALIFORNIA.

This is the way we clean the grapes for raisins. Theoretically, you are not allowed to touch the bunch at all—except by the stem. When you touch the grapes it rubs off the beautiful white bloom that covers the amber tinge in the White Muscat of Alexandria. Catch your bunch by the stem. Pick off every premature grape; every one that has not come to perfection; every one that is cracked or broken; every one that shows any indication of decay; every one that has been picked by birds; in fact, *any* grape that has any fault at all. Now cut the stem as close to the bunch as possible, and lay it carefully on the tray beside you. This is the whole art of cleaning the grape. These trays of cleaned grapes are carried to one side and placed end to end. The trays are just a yard long and two feet wide. I cover mine with cheese-cloth. The grapes will cure in 12 or 15 days in first-rate raisin weather, under the cheese-cloth. It takes 20 or 25 to cure them, with the best of weather, under the old system—that is, bareheaded. The cloth protects the grapes from dust, dirt, and insects. Woe to the yellow-jacket or bee that gets under that cloth on a warm day. For these reasons the cloth makes a better and cleaner raisin.

In four or five days the beautiful green grapes that you placed on those trays will have undergone a change. You take off the cloth for a hundred—two hundred yards. There, spread out before you, is apparently an immense long line of soft, mushy, rotten grapes. A stranger

to raisin-making would pronounce them lost. If there were in your armor a crack or a crevice he would thrust in one of his arrows of consolation. But, wait! Don't make them into vinegar or sell them to the wine-maker yet. Wait three days—it may be four. Now see the change. The top of the fruit has shrunken downward. The beautiful blue tinge of the perfect raisin has appeared; and, better than all, there is the magnificent bloom of the green grape that disappeared on the second day—come back again to beautify and glorify its old home! Now they are ready to turn. An empty tray is turned upside down on top of the first full one. Both are drawn a couple of feet from the row (to give room to work) and whirled over. Thus the full tray becomes the empty one, and serves to turn the next. When this side that you have just turned up gets the blue tinge, and the bloom is apparent, the raisins are ready for the "sweat-box." This is a box 10 or 14 inches deep, and a little larger than the tray, so that a tray will go down into them. You take your tray, put the open side (one side has no rim) down into the opposite side of the box. As your raisins slide off you draw the tray toward your side of the box, and the fruit will slip in, just as it is laid on the tray. The sweat-box is a misnomer. The raisins do not sweat—they merely equalize. Some are too dry—some not dry enough. They commence to trade off as soon as they get together. In four or five days they are all alike—ready for the packer.

You gave a very good idea of packing raisins, in your Riverside article, when you returned from California. But the fellow who put the bad raisins in the bottom and the best on top was a rascal—there is no getting over *that*. I do not here wish to represent myself as an extensive producer or packer. I have but a small vineyard. But he who has a small vineyard must understand the business as well and as perfectly as he who has his 5000 acres. If he doesn't he will come to grief.

I see you made a slight mistake in regard to raisins at Riverside. "London Layers" is only a *name* for the best quality of raisins. It does not indicate that they were either built, brought up, or educated in London. The early packers gave their best raisins this name to indicate that they were fit for the London market. Some pack under the name of Crown, Double Crown, and Treble Crown. But I think that Americans should discard all these imperial and foreign names. New York can eat as good raisins as London or any city in the world—yes, and pay for them too! Why not change the "London Layers" to "New York Layers"? There are really but three grades of raisins. The second grade is simply "Layers." The third is "Loose Muscatels," for cooking.

A great calamity has befallen the raisin interest this year. It commenced raining on the 26th of Sept., and continued, at intervals, for three days. At this time about all the raisins in Southern California were spread out in trays, many of them just fresh picked—some half dry. When it quit raining it was evidently against its will. It wanted to rain—threatened us for eight days more. It was cloudy and murky, and now and then it would take a dash at us at night. The green grapes rotted, and will have to be picked over, at a great loss. The half-dried raisins will be greatly damaged. There will be an actual loss of 100,000 boxes in the southern part of the State.

THE FIRST SECTION BOX.

In a pleasant conversation with J. S. Harbison he informed me that in Oct., 1858, at the State Fair at Sacramento, he exhibited the first section box that ever was made for honey. Was it the first section box? Is there any section box that has an earlier record? He also informed me that he used the solar wax-extractor in 1860. But he does not know who was the original inventor. Others used it before him. He seems to think it invented itself. His words were, that it came naturally into the head of any bee-keeper. They are called solar honey-extractors here, from the fact that all honey was extracted by them for many years. They are used still for that purpose by many farmers. I have seen them 20 feet long, three feet deep, and four feet across the top. They are made like a trough, and lined with tin. A wire screen fits in, half way down.

Olivenhain, Cal. J. P. ISRAEL.

Thank you, friend I. I would by all means mark the raisins so that nobody could be misled; and I do not see why *California* layers is not as good a name as any.—I have no knowledge of any sections previous to 1858, and that dates back before I was a bee-keeper, and before we had any journal on bee culture in the United States.

GETTING THE BEES TO EMPTY OLD BROOD-COMBS.

FOWLS' PLAN.

Dr. Miller says he has reduced the time to two or three days. Well, I get the job done in 24 hours, if the weather is warm enough so the bees will fly freely; but if it is colder his plan is no doubt the best where the hives have a loose bottom. If the doctor tries to have old black brood-combs emptied his way when the weather is warm, I imagine he will have a "hot time" taking the combs away, for the bees will hang to the old combs a great deal worse than they will to the unfinished sections; and of all disagreeable work, shaking hungry bees off dry combs is the worst.

As before mentioned, his plan will not do for those who have hives with a permanent bottom, like mine, and I will therefore give my plan, which is simply a slight

IMPROVEMENT ON DR. MILLER'S PLAN OF HAVING UNFINISHED SECTIONS CLEANED OUT.

I take my old combs that I want emptied, and, after uncapping the sealed honey, I put them in empty hives with tight bottoms, and set them down close to the entrance of the colonies I wish to feed, just at dusk. I put in a less number than would fill the hive, so they are spaced further apart; and if I want to feed more combs I put on an upper story. If it is a cool night I put the hive as close as I can to the entrance; if warm, three or four inches off, after getting the bees started on it, the object being to avoid getting the young bees out of their hive.

Nearly all of the honey will be cleaned out in the night, and early next morning I carry the hives of combs two or three rods to one side from the apiary, and close the entrance small (½ or ¾ inch will do); but if combs are new and tender, or contain any candied honey, they should be closed to a one-bee capacity.

Now, the bees that are already on the combs have the advantage through the day, and will get about all the honey there is left; and if they are managed so as to have no young bees on the combs they will all go home at night, leaving the combs free from bees, when they can be taken care of. By this plan I can get a hundred or more combs cleaned out every day until the job is all done with, and the light colonies

supplied with their winter stores, and all without lighting a smoker or opening a hive. I do not work with the bees during this comb-cleaning time; that is, not in the home apiary, where the work is done, and so I have no trouble with robbers. CHALON FOWLS (*per Violet*).

The following is a private note sent along with the above; but as it contains a "gleam of news" we take the liberty of giving it also. Violet's penmanship is as plain as a type-writer, and our printers wish other papas would call upon their little girls in a similar way.

Mr. Root:—I inclose an article. I wrote it today in such a hurry that I could hardly read it, so I got my little girl to copy it. The honey crop is small here. I took only about 1000 lbs., but I am happy just the same, for a "stranger" has arrived at our house; and although he doesn't pay his board, and talks kind o' queer, we have concluded to adopt him; and—well, you know how it is yourself.

Oberlin, O., Oct. 24. CHALON FOWLS.

ERNEST'S NOTES OF TRAVEL AMONG THE BEE-KEEPERS OF YORK STATE.

BICYCLING OVER THE MOUNTAINS TO ALBANY.

The next morning Mrs. Root took the stage for Hunter, at which point she was to take the train to New York, to meet her sister. In the meantime I donned my bicycle suit, oiled up, and stood in readiness to take a fifty-mile run to Albany. It had rained furiously on Sunday, and the roads were not in the best possible condition. With some misgivings, Mrs. Root bade me good-by, and off I started. I made pretty slow progress. Instead of going down to the Hudson, and following the river up, I decided to take a shorter run across the country. I had gone hardly five miles before I almost had a notion to turn back, as the roads were so muddy that, in several places, instead of the bicycle carrying *me*, rather than get it all mud I picked it up and carried *it*. I traveled along in this way until I came to a pedestrian. Some of the time he was away ahead of me and some of the time I was up even with him, and it was somewhat humiliating to be plodding along at that rate, knowing that fifty miles or so were ahead of me. I thought that, when I got to the top of the mountain I would sit down and coast all the way. I arrived at the top, and, behold there was another magnificent view; but as I have exhausted all my vocabulary of adjectives, I can not stop now to tell you about it. I commenced coasting, and all was very fine for a while; but the road grew rapidly stony and rough, and it seemed to get steeper and steeper. The brakes would hardly hold me, and some places were so rough that I had to dismount and hold the machine back. I never had the attraction of gravitation torment me so much as on that ride from Mount Pisgah. It was a continual pullback all the time. On the way a stone caught under the guard, and I thought sure then that the machine was utterly smashed. I stopped and cleaned the mud out, reached the stone, scraped out the guard, and away I went.

There was nothing particularly attractive on this road to Albany, except, perchance, the mud. Like the same article in Ohio, it would stick to the wheels, get under the mud-guards, and whenever I dismounted it would cling to my feet. The roads seemed to grow worse and worse. So rough and stony was the land that agriculture seemed to be developed but little beyond its primitive form. I saw log houses and ox teams. Here and there were box hives; and one place I remember in particular had in its front yard from forty to fifty skeps. I thought of turning in and asking the owner of those bees a few questions. Possibly he might give me an idea or two; but every thing was so dilapidated, house and all, that I decided to go on. I was traveling at a pretty fair rate, when just back of me I heard a low growl, and the rapid patter of feet. Looking back I saw it was one of those

LARGE FEROCIOUS BULLDOGS.

He had come from the yard where I saw the box hives, and he was after me full tilt. Unfortunately the road was rough, otherwise I could have left him in the race. I put on all speed, however; but, despite all I could do, the dog was coming nearer and nearer. I felt every moment that he would grab my stocking legs, and the cold chills crept up my back. I never had a nightmare that was more real. I was thoroughly frightened, and I longed for a weapon of some kind. Something that I could not do ordinarily I did this time. While the wheel was in full motion I whirled about in the saddle, and, with heels sticking out behind, kicked out back. I ran into an obstruction, and the next thing was bicycle, rider, and dog, pretty badly mixed up. I was on top of the bicycle, and the dog on me, and I thought my days were ended. Although on my back, I grabbed for his throat, and kicked lustily with my feet. The dog was evidently as much or more surprised than I, for, the next thing I knew, he was running for the box hives, with his tail between his legs, yelping as if the evil one were after him. I picked myself out of the mud, and, with a stick, scraped that article off. I mounted the saddle again, and at the next house I came to I stopped for a drink of water. A good-natured farmer came out, and, observing my dilapidated condition, asked me whence I came and whither I was going. I told him, and then related the squabble I had had with the dog, and desired him to convey the intelligence to the owner of the box hives, that, the next time I came along that way, I would surely kill his dog. As I never expect to travel the same route again, the dog will probably not die by my hands.

Perhaps I might say here, that one of the things that annoy bicyclists along the country is good-for-nothing dogs whose chief business is to annoy passers-by, and who seem to have a particular dislike to bicyclists. This is not the first fracas that I have had with dogs. In one other instance, one of a ferocious type actually grabbed me by the calf of my leg, and hung on. I was at my wits' ends to know "what to do, and how to be happy while doing it." A thought struck me on the instant. Turning to the dog I said sternly, "Jack, go back into the house, sir! Go back, sir!" It was quite evident that the animal had heard this before. Letting go he looked at me as much as to say, "Well, may be I have made a mistake," and back to the house he went. Usually, when the roads are fair I run away from them. If I have a fair start, it is a pretty good dog that can even catch up with me.

But, to return. I wearily wended my way over the bad roads, until I reached the suburbs of the old city of Albany. A man passed me, and said, "They are waiting for you in the city."

"Who?" said I. "Bee-keepers?"

"Bee-keepers!" said he in surprise, and we both passed on, neither knowing what the other meant. I had supposed that he meant that

there were two or three bee-keepers in Albany who expected me that day, and that, when I came, we would go into camp at Lake George. He, in turn, meant that a company of wheelmen were on their way to Syracuse. There was one important member, as I afterward learned, whom they were waiting for; and supposing me to be that individual, he thought he would hurry me up. I had gone very nearly fifty miles over roads that were hardly passable for even a lumber-wagon, and I had taken nearly all day to do it; and, to make matters still worse, the streets of Albany were the worst paved of any I ever came across. I dismounted, and pushed my wheel on the sidewalk. A burly policeman, with his club uplifted, very respectfully advised me to get into the road, with its muddy and uneven places. I complied. I soon reached the hotel, and took lodging.

AT THE CAMP OF BEE-KEEPERS ON LAKE GEORGE.

The next morning, about 9 o'clock found me in the city of Troy, the place where they make collars and cuffs by the carload. After visiting with friends and relatives, I left my bicycle in the city, and took the train for Lake George, which I reached that afternoon. My friend F. A. Lockhart, of Pattens Mills, near Lake George, was on hand at the Depot. A couple of lady bee-keepers, Miss Douglas and Miss Wolcott, came on the same train. I went to the hotel, and the two ladies went with Mr. Lockhart to the camp. The next morning Mr. Lockhart came after me, and very soon I had the pleasure of meeting Rambler. Yes, if I had not been told so I should have known that good-natured, rather tall individual driving a black horse. Then there was Mr. Lockhart's father, one of those pleasant, hearty Scotchmen that it is a pleasure to see. There was also John H. Larrabee and his brother; Mr. and Mrs. G. H. Knickerbocker, Mr. Higley, and several others whose names I have forgotten.

Mr. Lockhart, Sr., owned a cottage along the shore of the lake; and as the attendance at the camp was not large, the tents brought by Rambler and "genial John" were not used. We accordingly all of us took up our quarters in the cottage. There was just enough to make a good-sized family, representatives from Vermont, New York, and Ohio. A couple of row-boats were at our disposal, so that we could take rides upon the lake; and, in addition to that, a small steamer, rebuilt by a son of Mr. Lockhart, of queen-rearing fame, came around both days to our camp. In addition to this there was fishing-tackle, and every thing else in the sporting line, that could make such a camp delightful, to say nothing of the beautiful scenery round about. The boys had been out fishing that day, but succeeded in catching only four or five small minnows; and during the time I was there, no large fish were caught.

We talked bees, we talked bee-keepers, and I should not be surprised if we indulged in a little gossip, not only at each other's expense, but at the expense of some who were not present. We visited as only bee-keepers can, until late in the evening. The ladies of the party retired at a *reasonable* hour, but the rest of us had not finished talking yet. As in almost every crowd like this there was one comical genius (Brodie Higley by name) that, no matter what he said or did, we had to laugh. Rambler has spoken of him as the bee-keeper who attempted to winter his bees on wagon-wheels; see GLEANINGS, page 635, 1888. It was growing late, and our friend Mr. Higley could keep awake no longer, and finally, in an upright posture, he went off into a doze, while we talked and laughed. As he leaned back in his chair, his appearance was exceedingly comical; and, no matter how hard we laughed, the sounder he slept. A thought struck me, and I proceeded to put it into execution. I brought all the lamps we could spare, so as to get a good illumination on the face of our friend, and I was just then quietly poising my camera, that I might have a permanent record of his face—his mouth wide open, and he himself enjoying all the bliss that sleep can give, when, lo! he suddenly roused up and glared at the camera. He did not see any thing to laugh at, although the whole crowd of us fairly yelled. Pretty soon he quietly retired to a corner of the room, and was soon fast asleep. Not long after, the whole of us retired, it being my happy lot to sleep with the Rambler. The next morning I got up feeling any thing but refreshed; my sides were sore from laughter of the previous evening.

A RIDE ON A BEE-KEEPER'S STEAM LAUNCH.

That day our crowd was invited by the Andrews to take a ride upon the little steamer—an invitation which we gladly accepted. I took along my Kodak, and took photographs of several of the mountains. To give you just a fair sample of the beautiful scenery, I give you one of the instantaneous views herewith.

A VIEW ON LAKE GEORGE.

I stood up in the steamer, and the view taken shows a part of Mr. Andrews' hat, and, I think, a corner of Mr. Larrabee's face. You can see that the shot was instantaneous, as the ripples and the waves are apparently motionless.

We visited most of the principal points at that end of the lake; stopped at Mr. Andrews' cottage, romped about a while, and finally returned. It was suggested by one of the party, before leaving the steamer, that we have a photograph of it taken. Both Rambler and I tried our hands at it, but neither succeeded in getting very good views. Then after the party left the steamer they stationed themselves on the shore, and we both took a shot. There was a sort of spring-board on the end of the dock. In order to take in the whole crowd I had retreated clear to the end of this board, and the water beneath was perhaps 15 feet deep, and as clear as crystal, as is the character of the whole lake. I had stepped just one step back too far and came very near taking a plunge bath—camera and all, and after a good deal of wiggling I regained a upright posture. The crowd on the shore were in the height of their

hilarity at my expense, when at that instant I secured a photograph. The place being a little shady and dark, the picture is not clear enough to reproduce; but I never saw broader grins on the faces of a party than are shown in this little miniature photograph. That afternoon we went out in a row-boat, and we were shown a place where a certain man-of-war was sunk during the French and Indian War. The water is as clear as crystal; and when the lake is still enough, I am told that this old relic of our forefathers can be seen at a depth of 40 feet.

That afternoon I was obliged to leave, although some good fishing was promised me if I would stay. The rest I will leave for the Rambler to relate, which he will do in a forthcoming article soon.

To be continued.

PURE ITALIANS VS. HYBRIDS.

DR. C. C. MILLER VOTES IN FAVOR OF ITALIANS.

Like yourself, friend Root, I was a little surprised at the answers on page 752 to the question whether pure Italians or hybrids would do a better season's work. And now, upon making a careful canvass of the replies, I am again surprised to find my first impressions were so far from correct. The impression left on my mind, after reading the replies, was that the general consensus of opinion was that hybrids are better for work than pure stock. Instead of such being the case, I find that, of the sixteen replies, aside from my own, seven prefer Italians, four prefer hybrids, one thinks there is no difference, and four are non-committal. Having kept bees solely for the sake of having the honey to sell, I have never cared for color, whether yellow, black, or green, only so they gave me the most honey. The reports of others settled me in the belief that hybrids are just as good workers as pure Italians; but every year or two I got an imported queen for the sake of infusing fresh blood. Most of the queens I raised were daughters of these imported queens, but for the last two or three years I paid less attention to the matter, leaving the bees to a great extent to raise queens to suit themselves. As I had for so many years been bringing in imported queens my bees were all either pure or hybrids, and the few bees surrounding me would be pretty well Italianized. Not rearing queens for sale, and believing that hybrids would give me just as good results as pure Italians, why should I trouble myself any more than to throw in a little fresh blood now and then? The yellow blood being in the ascendency, I could reasonably expect it to remain so, even if I never got another imported queen; and by bringing in a fresh imported queen every year or two, the black blood ought soon to work itself all out. But I was surprised to find the number of very dark hybrids on the increase—a good many of that sort that kind o' hang along without getting ahead much, and allow the worms to take possession—and in 1889 I actually found two or three colonies that no one would suspect of having any yellow blood in them—pure black. I also found that, instead of wearing a veil on my hat, to be pulled down only occasionally, I had gradually come to wear my veil down all the time.

In the A B C, friend Root speaks of the vindictiveness of hybrids. In my comments thereon I say, "*My* hybrids do not and never did deserve the reputation you give them. Perhaps one in two hundred may, and then a queen loses her head." But the "one in two hundred" became quite a number in one hundred, and there were times when I dreaded to go near them.

One day as I sat working at a hive, having had a little more than the usual quota of stings, I looked up from my work, and, with suppressed groans (and, I presume, with unsuppressed lugubriousness of countenance), said to my assistant, "If I knew that this thing were to continue straight along in this way, I think I should want to give up the business." Instead of giving me the hearty sympathy I had a right to expect, she merely looked at me and laughed very heartily. To this day I don't know just what she laughed at. There was nothing funny about it.

In that same summer of 1889 I had a good illustration of how much trouble some people will take to avoid trouble when a pet theory is involved. I had a visitor whom I will not name, further than to say he came from Medina, and was somewhat barefooted on the top of his head. While among the bees I urged him to put on a veil. Not he; it was too much trouble. Do you know that, all the time that man was among the bees, he spent his whole time blowing a smoker about his head, puffing first on one side then on the other. If he had been obliged to work at a hive he would have taken a good many stings, or else would have taken to his heels.

However well he stuck to his theory, I had to give up mine. I concluded hybrids were not as good for me as pure Italians. However good a first cross may be, if such are encouraged they are sure to be followed by second, third, and sixteenth crosses, among them such crosses as *are* cross and very poor workers. So this last summer, wherever a colony showed the least taint of black blood either in color or disposition, the queen of such colony was remorselessly destroyed and replaced with one of pure origin. This brought death into some of my best colonies. The queens were killed, not because of what they were, so much as because of what might come after them. As a general rule I am kept too busy to keep close track of the qualities of each colony; but in one case I did give close observation. I had an imported queen whose workers, in appearance, pleased me less than any I had ever had. This led me to watch narrowly their conduct for some days, to see if they were any more industrious than others in the same apiary. There was no mistaking it; there was not only a difference, but a *marked* difference. Especially in the morning was this noticeable, for no other colony in the apiary sent out so strong a force, although some were more populous.

Hereafter, if a colony of hybrids be found among my bees it will be by no design of mine.

Marengo, Ill., Oct. 22. C. C. MILLER.

Friend M., if you had had decent bees, instead of the kind you did have, I should not have needed a bee-veil or smoker either, at the rate your bees were getting honey during my visit. Very likely that is your opinion, as well as mine, so we can drop it right there.

A WINTER REPOSITORY.

PLANKS FOR CEILING BOARDS.

I have recently built a bee-cellar which I should like to describe, and have an expression of opinion from yourself and others as to its wintering qualities.

My apiary is situated in a valley and near a small swamp. The soil is sand and gravel, and there is just enough rise so I could dig down

three feet for the cellar, and still have a three-inch tile drain, sunk below the cellar floor, which comes out at the edge of the swamp sixty feet away. The cellar is 8½ feet high from floor to ceiling; 15 feet long, and 8 feet wide. I used cull ties and slabs to support the earth, which is banked against the sides and on the top. The earth is 3 feet thick where the bank begins, and slopes up to the eaves, where it is about 6 inches thick. The roof is flat, and the earth is piled up on it to a peak. The whole is covered with a thick layer of marsh grass, which keeps the earth perfectly dry. For ventilation I have the tile drain and an 8-inch ventilator in the roof. For an entrance there is a hatchway made in the same manner as the main cellar, with outside, middle, and inner doors, by which, if necessary, one can enter without admitting any light or cold air. I shall put in only 70 colonies this winter, but I think 150 colonies could be wintered in it. I built it because I have no cellar near the apiary. I would rather construct such a cellar than move the bees even half a mile to reach one. Such a cellar can be constructed for $25.00 if one is near a sawmill where cull timber and slabs can be purchased cheaply; and by keeping the roof dry I think it will hold for a number of years. HARRY LATHROP.

Browntown, Wis., Oct. 17, 1890.

Planks or slabs will do well enough for two or three years for ceiling boards, but in time they will rot from the moisture of the bees, and the whole thing will cave in—perhaps at a time when you can least afford it. Mr. Doolittle's cellar had planks for ceiling boards under the dirt similar to yours, but they rotted and caved in this spring. They might answer if lined with tarred paper.

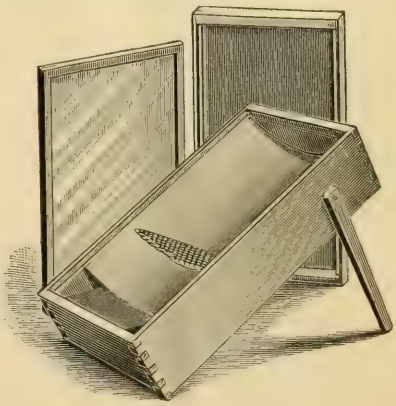
THE SOLAR WAX-EXTRACTOR.

HOW TO MAKE AND HOW TO USE ONE.

One of the most convenient things I have in my apiary is the solar wax-extractor; and as it is so handy to have around, I thought that, with your permission, Mr. Editor, I would describe it at this time, so that, during the dreary winter days which are coming, any of the readers of GLEANINGS who desire to have something which they would appreciate in years to come could spend a day or two of time in making something that would brighten other days, even if it did not the days they were working at it. In order to make it plain I will give the size and number of pieces contained in the extractor, by numbers, and then tell you how to put them together.

Number.	Pieces.	Length in inches.	Width in inches.	Thick.
1	2	30	10	¾
2	2	14	10	¾
3	3	15¾	10	¾
4	2	30	¾	¾
5	2	17½	¾	⅜
6	2	32	4	⅜
7	2	16	4	⅜
8	2	34	¾	¾
9	2	18	¾	¾
10	1	34	19¾	½
11	2 straps	10	1	
12	1 sheet American stove-pipe iron	20	18	
13	2 glass	30¾	16½	

Having these pieces cut to the dimensions above given, take No. 1, which is for the sides of the body of the extractor, and nail to the ends of No. 2. Next nail No. 3 on to one side for a bottom. If No. 3 are made from matched lumber, and all joints put together with white lead, no loss of heat will occur from its escaping through the cracks or joints where the extractor is put together. Nail No. 4 to the outside of the extractor, at the sides, ½ inch from the top, for the glass frame to rest on, and then nail No. 5 to the ends of No. 4 and the extractor. Now nail No. 6 to the ends of No. 7, for the glass-frame, putting the glass, No. 13, into the grooves cut for them, before nailing. These grooves should be ⅜ deep, the upper one being ⅜ from the top, and the next ⅜ below the first. Unless you can nail this frame or sash very carefully, so as not to break the glass, perhaps it would be better put together with screws. The frame is put together with white lead, the same as the body was; but there is no lead put in the grooves, as we could not get the glass out, should it ever be broken, if we did; and I find that air passes very slowly where it has to go around any thing in the way it does this glass. Next nail No. 11 to the center of this glass frame at each end, nailing them in such a way that they will form loops or handles, for the frame is to be handled by these, slid off and on, etc. Now nail No. 8 to the ends of No. 9, nailing No. 10 to the side of the frame made by nailing Nos. 8 and 9 together for a cover to go over the glass frame when the extractor is not in use. This cover will keep the glass from getting broken by hailstorms, or from any other causes, and will also keep the storms from swelling our extractor by getting the inside wet. If you can not very well have No. 10 in one piece, narrower stuff with the cracks battened will answer all purposes. Also, if you can not get glass of the size named, several, 16½ inches long, will do by making the joints so they will not come over



DOOLITTLE'S WAX-EXTRACTOR.

each other so as to let the heat out too rapidly. Now take No. 12 and spring the middle down till the edges come even with the top of the body of the extractor, and snugly against the back of this body, when it is to be nailed along each side to the side of the extractor. This will give you a hollowing trough on which to put the material which is to be rendered into wax, and the black surface of the iron will so absorb the rays of the sun that it will become very hot in a short time after the cover is taken from over the glass. If a piece of ⅛-inch stuff is fitted on the under side of number 12, 5 inches back from the front or open end, so as to keep the hot air from going under the iron, it will help some about keeping the wax melted in the dish into which it runs while extracting. This keeping the wax melted in the dish helps much about getting it caked in nice form.

HOW TO USE THE EXTRACTOR.

Select some place, as near the center of the apiary as possible, where the sun will shine from 9 A. M. to 3 P. M., the year round, and there

place a piece of 2x4 stuff, as long as your extractor is wide. Fix this piece so it will rest secure on the ground, and hew it each way from the center, till the ends are 2 inches square. In the center put a pin of ¼-inch iron, while a ⅝-inch hole should be bored in the bottom of the front end, or No. 2, to receive this pin. Next, provide several pieces of 4x4 stuff to put under the back end of the extractor, so that you can lower or raise the back end, according to the season of the year, or, in other words, according as the sun is high, as in June, or low, in November. From the middle of May to the middle of August the extractor will do all you want of it, if faced directly south and left so all the while; but earlier or later it will need turning on the front pivot at least three times during the day. At nine, face it southeast; at noon, south; at two, southwest. To thus face it, was why our front "sleeper" was fixed with the pin as I have given. Every scrap of wax that is taken from the hives while at work in the apiary is put into the extractor as we pass by it, and all that accumulates in the shop is placed in a pan kept handy by for this purpose, and the pan is taken and emptied into the extractor as often as is necessary. When there is a sufficient accumulation in the extractor, the cover is taken off from over the glass some sunshiny day at 9 A. M., and the wax allowed to "extract." When the whole mass is melted that is on the iron, slide the sash to the front, and, with a wooden paddle about 3 inches wide, draw all the refuse up on one of the inclined sides to near the top, pressing on the paddle considerably, so as to break any of the cocoons that may not have broken, so that all of the wax may work out. In this way the wax will all run out as clean as it can be gotten out in any other way, and I used to think that I could get out 100 per cent of it in a kettle of water. After all the wax is out, and while the whole is still hot, draw out the refuse with a scraper made of wood for the purpose, when the extractor is left all clean for another batch of wax scraps. If left till cold, this refuse will stick to the iron so that it can not well be removed, owing to the propolis that will always go in with the scraps. A dish of suitable size should always stand under the open end of the iron trough; and to keep the dish level I use square pieces of wood of different thicknesses, so that, by laying one on top of the other, any elevation of the back end can be overcome. To keep the scraps from sliding down into the dish of wax, which they are liable to do as soon as they begin to melt, where the elevation of the back end is great, as it has to be in the fall of the year, I cut a piece of wire cloth so that the edge of the wire cloth will fit the hollowing iron trough, after which this wire cloth is nailed to two suitable-shaped pieces of board, or pieces of sections, when a wire is attached to each piece of section, when the other end is bent at right angles, so that they will drop into holes bored along the upper edge of the body of the extractor. By having these holes in different places this wire cloth is adjustable, so that, where but few scraps are put in at each melting, they need cover but a small part of the iron trough. Having got out several lots of wax in varying amounts, I remelt it and cake it in 3-lb. cakes, straining it so as to take out all impurities, as I do so. In doing this I allow 2 oz. for the impurities, putting 3 lbs. 2 oz. each time into the extractor. For a strainer I use two thicknesses of cheese-cloth, fixing this cloth over a wire bent so as to form a hoop 5 inches in diameter. By drilling two holes at the right place in the front edge of the trough, and passing two wires around the strainer wire, and up through the holes in the trough, the strainer is drawn up so it will not be down in the wax, and is held thus by bending the wires over the front edge of the trough. In this way I not only save all the wax made in the apiary, but I let the sun put it in the best of shape for the market, or my own use.

In conclusion I will say that very little if any thing about this solar wax-extractor is original with me, but was made to suit me from little items I picked up here and there regarding them. I think I got the most of my ideas from the writings of G. W. Demaree on the subject. The size given is plenty large for 100 colonies, but the dimensions can be varied to suit the wants of any one. G. M. DOOLITTLE.

Borodino, N. Y., Oct., 1890.

You will see by the engraving above, friend Doolittle, that we have made a little neater job. There are fewer pieces; being dovetailed at the corners, it is stronger; the glass-frame is easily removable, and the whole thing, when covered, is complete without any projections, save the supporting legs to hold it at an angle toward the sun. The size is a trifle different, as we made ours to take a 14x28 glass—a size that can be obtained at any hardware store.

Now, friend Doolittle, instead of going to work and giving so many pieces of so many different sizes, I would recommend the one who contemplates its construction to make a plain box whose inside dimensions shall be 14 inches wide, 29 inches long, and 7 inches deep. The sides of said box (not the ends) are to be rabbeted ⅞ deep and about ½ inch wide to receive the glass-frame. The cover should be a similar box, but only 1½ inches deep, of the some dimensions otherwise, and is likewise rabbeted on the side rims. You will thus observe that the glass-frame 29 inches long and 14⅞ inches wide can be let down into the rabbet into the box, and that the cover slips over the whole thing, and makes a complete and neat box. The legs are 17½ inches long, and are pivoted with a screw, as shown in the engraving. The dovetailing is not essential, but as it costs us no more we make it so.

The pan is simply a trough made of Russia iron, one end of which is closed up, and the sides are bent over a little bit so as to rest on the rabbets in the sides of the box. The wire screen is fastened about ⅔ of the way down, as shown in the engraving, or just far enough to admit of a Langstroth frame. I would suggest, that in telling how to make a hive or any other similar box, we give its inside length, depth, and width, and he who constructs it can then with less mental effort tell how to make it.

I have carefully tested your solar wax-extractor, and feel very sure it is very much superior to the one we have formerly advertised. It doesn't clog up, and the wax, when it melts, runs down an inclined plane, runs through the screen, and finally into the pan, and the pan is allowed to stand in the direct rays of the sun, the wax is kept liquid during the entire day, so that all foreign substances will settle to the bottom. E. R.

A VALUABLE LETTER FROM CUBA.

CUBA VS. CALIFORNIA.

Friend Root:—As so many readers of GLEANINGS have written me about Cuba as a bee-country, I can do no better than answer through its columns, so that all can have a chance at the same dish. It would be quite impossible for me to mention all the advantages and disadvantages in one paper. One writes, "How does it compare with California?" In some respects there is a similarity—that is, in the amount of honey, for instance, that is often secured from a given number of colonies; but then, there is a want of comparison, too, for California of to-day is not what it used to be for honey-producing, as the fruit and vine industries have made such rapid strides in the last ten years that the bee-ranges in many of the honey-producing counties have been turned to vineyards and orchards, while here there is nothing of the kind. The hand of push, of progress, of go-ahead, that is bound to succeed, the hand that has characterized and stamped the American people as the most energetic in the world, is crippled here—broken, as it were. Not a muscle moves in the direction of "get there on time." But the natural resources remain *almost* untouched by the hand of man, and they are something wonderful. As an evidence, I will say that, while the last year has been the poorest for honey I have ever seen here (on account of so little rain), yet our 550 colonies have passed through the dry season (or dearth of honey) with very little help. We have fed only ten pounds to the colony; and had it not been for the fact that we had 300 new colonies to make, I do not think we should have had to feed half that amount.

Bee-keeping here requires attention. To care for 550 colonies in California is only pastime compared with here, and the whole United States is the same. There is some season of rest for the bee-keepers, but here there is not. From November until March is our surplus season. Well, there is no rest about that. Then comes requeening, and the making of new colonies if you have any to make. The hot weather is then upon you; and if there are any queenless colonies that are at all weak, the moths will probably eat up the combs; and I want to tell you that it takes a pretty strong force to stand off the moth in this climate, where it never freezes, but "eternal vigilance" will keep them out.

Any one, to keep bees here successfully, must attend strictly to business. There is no time to go visiting, to hang around the corner grocery, or to sleep in the day time, but work and watch 365 days in the year, if there is no church to go to on Sunday, and there is not here. But for all the care necessary to success here, is it any worse than the life of the merchant? If he succeeds he must tend to business. How would it be with you, friend Root, if you or some competent person were not on duty all the time? How long would your business be self-supporting? I guess not very long. The same with bee-keeping here. It will pay if attended to. You don't see me running up the white flag. I tell you, that, if I do not succeed, it is my own fault. The conditions necessary to success are here; and if I do not avail myself of those conditions I have no one to blame. Of course, there are some requisites necessary to success, such as the right strain of bees, hives, fixtures, etc., suited to the wants here for a large business; but the bees, the right strain, are very important. We have the best results from the hybrids, one and two bands.

One correspondent asks, "What is the cost of starting an apiary of 550 colonies there?" That is a hard question to answer. This establishment cost $10,000. How much cheaper one could start such an apiary would depend upon the man's ideas of what is necessary. There have been some apiaries started here that I presume did not cost $1000; but I think they have never amounted to much, or, at least, I have never heard that they did. If I start more apiaries it will not be with a view to see how cheap it can be done, but how complete an establishment for the care of 600 colonies can be made to successfully care for all the details, with as little help(man power)as possible.

There was one young man wrote me for my opinion of the two sections, California and Cuba, for bee-keeping, and gave his address as Orange Co., Florida, no postoffice. I could not answer with such an address as that. The letter would only go to the dead-letter office.

You will remember I told you last spring that I had a 5-to-1 gear for my Stanley extractor. Well, I have it now, and it works like a charm, when, before, the operator had to make his hand go around so fast, in order to properly dry the combs, that it was very tiresome indeed; and even then it could not be done to suit me. Now, it is no trouble with the 12-inch crank. You move the hand around slowly and deliberately, and the baskets are traveling as though they were afraid they would miss the train. The throwing-out of the honey now is a pleasure, while before it was a task that but few had the strength to perform. Yes, it starts a little harder; but when in motion there is no difference; but the difference in starting is more than made up by the slow motion at which the crank passes around. I shall do nothing wrong if I say to every one thinking of coming to Cuba to keep bees, that, if they wish to come, there is nothing in the way; that there is plenty of territory that is not occupied, and, in fact, the best part of the island, for bee-keeping, is still open, to be occupied by whoever wishes. With attention, more money can be made from bees here than in the United States; but let no one forget that there is no season of rest, from one year's end to the other, if he would do justice to the business, and make it pay. Many object to sticking so close to bees. That is all right; such people are not obliged to stick to bees. As for myself, I like my business, and I like to attend to it, and I have yet to see the business that thrives when it is neglected. The business is so unlike what it is in the United States that people fail to understand the difference without experience (and some not then). Here, in order to make the business pay, we are obliged to keep large apiaries; and, with large apiaries, the per cent of loss from colonies getting queenless is great; and if left queenless only a very short time, the combs are destroyed by moth, and many other little things that contribute to loss, where there are five or six hundred colonies together, that would not happen with a few colonies. All details need the closest attention. But with all the objections that come up against the large apiary I will take it every time, and give the one my best attention, rather than have five or six little bunches located in as many different places, as long as there is plenty of forage in one locality for the whole. This is the 23d of October; and with 550 colonies here in one apiary, the best are storing honey right along, and we are taking it away—a thing I never did in October before in Cuba, and you will remember that this is not one of the months we expect our bees to store surplus. This has been a very poor year. The Cuban bee-keepers in this locality have lost most of their bees. Very little rain indeed. A. W. OSBURN.

Punta Brava de Guatao, Cuba, Oct., 1890.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 172. *Which will do the best work—a colony allowed to swarm (counting in the work of the swarm), or one kept from swarming by having its queen caged or removed?*

I believe one allowed to swarm.
Ohio. N. W. A. B. MASON.

In an average season, one allowed to swarm.
Illinois. N. W. C. MRS. L. HARRISON.

The colony allowed to swarm, if managed right, I think will give the best results.
Ohio. N. W. H. R. BOARDMAN.

This depends. I should usually prefer no swarm if the colony kept actively at work.
Michigan. C. A. J. COOK.

A colony kept from swarming does the best work, every time. But I want no queen caged nor removed.
Ohio. S. W. C. F. MUTH.

The one allowed to swarm, if managed rightly. The management to keep from swarming is why the latter is not so good.
New York. C. G. M. DOOLITTLE.

Ordinarily, where the working season is sufficiently long to allow the swarm to get into good working order for the main flow of honey, the swarming colony is best.
California. S. R. WILKIN.

We are opposed to natural swarming, but we do not cage nor remove the queen. We give our colonies empty combs to prevent swarming. But the hives generally used in this country are too small for such a purpose.
Illinois. N. W. DADANT & SON.

If there is a heavy fall crop, the swarmer might do best. In my locality I would risk the one made queenless, but I'd much rather risk one with a queen, if it took no swarming fever all summer.
Illinois. N. C. C. MILLER.

I think the colony without the swarm. Use a hive large enough to accommodate the increase, and give them all the room to work in the one hive, with all the combs they can use for honey and brood, and then extract.
Wisconsin. S. W. E. FRANCE.

That depends on what is meant by the "best work." If the question means what it says, the former. If the *most* work is meant, that depends on the season, locality, character of honey flow, etc.
Illinois. N. C. J. A. GREEN.

This is a knotty question. I can't answer it, as there are so many variations in seasons and localities. I have experimented much in this line, and am not fully decided yet which is best. I hope to learn something this year more definite.
Vermont. N. W. A. E. MANUM.

All depends upon the locality; that is, on the time of blooming of such flowers as you depend on for your surplus crop. I think that is the rule in most localities (counting the value of the increase), that the increase method is the best. Now, remember I do not say this to any person having a practical, mechanical method of preventing increase which is safe and sure; but as no one has, so far as I know, I will let the answer stand.
Michigan. S. W. JAMES HEDDON.

That will depend on the season and pasturage. If white clover is the only source of surplus, it is possible that the colony that does not swarm may gather the most honey; but if the honey season is a long one, with a favorable place for fall flowers, the colony allowed to increase will be far ahead.
Wisconsin. S. W. S. I. FREEBORN.

I do not believe in caging or removing queens to prevent swarming. It has always seemed to me like adopting a worse evil than the one we fly from. For extracted honey we find there is no necessity for removing the queen. If running for comb honey, we would allow the swarm to issue, and manipulate so as to give the new swarm all the working force.
New York. E. RAMBLER.

This will depend on circumstances—principally on the honey harvest, whether early or late, and whether you remove and return the queen at the proper time. Caging the queen in the hive is a lazy substitution, and will not kill the swarming fever. I have said that a swarm without a queen would work with greater energy than one with a queen, but having a desire to swarm. I repeat this, because I have been misquoted.
New York. C. P. H. ELWOOD.

I do not practice the method referred to, and therefore can not say how far it succeeds and how far it fails. I suppose, however, that the relative crops of colonies which do not swarm, as compared with colonies that do swarm and colonies that are divided, is what the questioner is after. Where the surplus season closes early in July, the most may be expected of colonies not increased — yet with many exceptions. Where good heavy runs in August and September occur, the most may be expected from colonies that increase. One year of my bee-keeping, the yield per colony was three times the usual average. That year I increased 17 colonies to 72. The best yield was from a colony made into seven by division—they raising their own queens.
Ohio. N. W. E. E. HASTY.

These answers are interesting, and I believe P. H. Elwood hits the nail on the head when he says that a swarm *without* a queen will work with greater energy than one *with* a queen having a *desire* to swarm. Granting that bees will work more energetically after they have swarmed, and are in their new home, it is very possible that the same bees have lost time just preparatory to swarming, and while the swarming impulse was upon them; and Mr. Elwood's point is, that, if it should be taken away from them entirely, they will average better. This is an exceedingly interesting and practical question, and if swarming can be controlled in some such way in out-apiaries, as Mr. Elwood and Hetherington do, it means that we can dispense with hired help to watch them, or, in the absence of such help, the loss from runaway swarms. E. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

JUST AS MUCH HONEY STORED ABOVE THICK-BARS AS ABOVE THIN ONES.

Well, Uncle Amos, I have come to tell you about my thick top-bars, as I agreed to at the close of the season. I have taken off all the supers on the 29 hives that I told you about in August GLEANINGS, page 602. The different top-bars on the 18 hives that I spoke of in the same article do not satisfy me at all, so I will say nothing about them, only that they were a failure so far as preventing burr-combs is concerned; but with top-bars $\frac{9}{16}$ thick and $\frac{7}{8}$ wide, and spaced $\frac{5}{16}$ with the furniture nails, has given me entire satisfaction. There was not a particle of burr-comb, except on two of the colonies, and only a very little on them.

In your foot-note you ask me whether the colonies with thick top-bars stored less honey than the colonies with thin top-bars. Well, I am sure that I could see no difference. It is my opinion, from what experience I have had, that, if the colonies were strong, and there were a good flow of nectar, the top-bars, or even the honey-boards, would make no difference in the amount of honey stored.

On page 659, C. C. Miller wants to know whether there isn't danger of running fixed distances to extremes. I wintered two colonies last winter on their summer stands, with this close spacing, and they were in as good shape in the spring as any I had, and gave me good strong swarms. I use a device similar to the Hill, covered with burlap and chaff cushions. One thing that Dr. Miller speaks of is to tip the hive up and look at the bottom-bars to see how irregularly they are spaced. This is a point that we certainly have got to overcome if we use close spacing. I have been very particular to have my frames hang so that the spacing would be the same at the bottom as at the top; but I find that I have one frame in one hive that got a little out of "whack," and, as Dr. M. says, there was no brood reared on one side of the frame; but if I could get some of those wires that Dadant & Son describe, bent to fit my frames, I think they would fill the bill.

Maple Ridge, Mich., Oct 21. FRED C. SMITH.

THE DOVETAILED AN OUTDOOR WINTERING HIVE; HOW IT MAY BE DONE.

Friend Root:—I am using a hive for wintering on summer stands, that I think is ahead of any thing I have ever seen, for reasons you will readily understand without explaining.

I use the common Dovetailed hive, and line each end with building-paper. I have the blocks and thumbscrews in the hive exactly like the Heddon. I use, also, eight closed-end frames, and hang them.

To prepare for winter I remove two combs and insert chaff dummies, one on each side, and screw up the thumbscrews tight. I have the closed frames pressed together tight for one end, wall-paper lining between them and the hive-walls. The chaff dummies are fitted tight to the end of the frames by pressure with a dead-air space between the dummy and hive-wall. A cushion laid on top of a Hill device, furnishes the winter preparation. Your bees are snug and warm for winter, and how they will build up in the spring! Now, this is good; it is cheap; there is no loose packing nor clumsy hives.

CLOSED-END FRAMES HANDLED AS EASILY AS ANY.

I would not use a hive without closed-end frames. Objections to them have been made by men who never tried them or did not know how to use them. The closed-end frames have so many advantages that they will never be laid aside by any man who knows how to use them; and when hung from above, a man must be very careless or ignorant if he kills bees in manipulating them. I know this hive and closed-end frame is a good thing, and seems to be about what Ernest is trying to get at, so I send this description, hoping that it may be of some service to him in his search for a summer and winter hive. J. RICHARDSON.

Moberly, Mo., Oct. 6.

Friend R., the plan you give has been given over and over again through our journals, especially years ago, about the time chaff hives were first inaugurated; but although such protection is a good deal better than none at all, during very severe winters the results have not been equal to such protection as was given by the chaff hive, or something equivalent to it. Of course, closed-end frames would be an advantage with such an arrangement.

PERFORATED ZINC FOR EXTRACTING, A SUCCESS.

Last year (1889) my bees swarmed a good deal. I hived them in 8-frame L. hives. They built, on an average, $1\frac{1}{2}$ to 2 frames of drone comb in the bottom, and nearly all drone in top story. I had no combs or foundation to give them, and they raised solid sheets of drones, at a considerable loss of time and honey.

This year I went over the yard, fitting in worker combs in place of drone in the brood-chamber, placing the drone comb in the second story, with a sheet of perforated zinc, Root's make, between, on 28 colonies. On looking them over soon after, I found two queens above, which I put below. One of the queens I found above, two or three days afterward. The others all worked well, very few drones below. In some hives the bees would clean out a part of one or more combs (drone) in upper story for the queen to lay in; but when honey came in fairly they would fill it up. In a few of the sheets the perforations were partly filled with wax; but combs in the upper story were not fastened down to the zinc where a $\frac{5}{16}$ space was used. I believe they are just the thing for hives for extracting, especially where the bees build all their comb; and they will pay expense and trouble of adapting them to the hives in one season's use.

KEROSENE FOR PROPOLIS, ETC.

I think the best and handiest way of getting propolis off the hands is to have a small can of kerosene handy. A few drops will "cut" the gum very satisfactorily. It is also good for rusty saws, etc. By running the bottom of the Benton queen-cage over a cutter-head, cutting $\frac{1}{16}$ deep and to within, say, $\frac{1}{4}$ of each edge, and tacking on a strip about $\frac{1}{3}$ thick by width between strips and length of cage, using about $\frac{3}{8}$ wire nails, the said cage can be used to introduce, the same as a Peet cage. To take off the bottom, pry up the bottom $\frac{1}{16}$ inch, using a stout knife; push the bottom back, when the nails may be easily pulled out. The strip or (bottom) will slide easily between the side strips, and may be used and put on the combs the same as the Peet. While, if any prefer to introduce by the candy plan, there is nothing to prevent by making cages this way; the wire cloth and top may be nailed on, and the bottom left until after the queen is caught before fastening. This idea may be old; but I, at least, have not seen it.

Port Orange, Fla., Oct. 14. JOHN B. CASE.

WATER FOR BEES; HOW TO MAKE THEM LET YOUR NEIGHBORS ALONE.

I will come to your and Mr. John Burr's relief about giving bees water, page 713. To keep bees from bothering your neighbors and yourself, and at the same time give the bees just what they want, give them salt water. As soon as the bees commence to fly and breed up they require salt; and I *know* if it is properly applied it will cure such diseases as foul brood. For watering bees, fill a nail-keg nearly full of sawdust; set it on a grooved board, with cleats nailed at each end to keep the water from running out. Place the keg one foot or so from the ground, under the eaves of some building in a warm and sheltered place. Throw in a handful of salt every other day; and if it does not rain, turn two or three quarts of water on the salt. In dry weather they will take more water; and if you have never tried it, or something of the kind, you will be surprised how many bees will work on it at all times of the day.

Bees go into winter with plenty of honey, but of poor quality. Look out for a loss this winter in New York. I have 600 packed for winter now. W. L. COGGSHALL.

West Groton, N. Y., Oct. 4.

SPANISH NEEDLE AS A HONEY-PLANT.

Within is what is called here stickweed flower. This is not more than half of the top in length. I had to cut them to suit my box. These were gathered right after a hard rain. The bees were thick on them when I gathered them. You ought to be here to see those black bees hustle out before daylight, and come in so heavily loaded they drop all around the hive. Please give me the proper name of these flowers. I will send you some seed this fall. They commence to bloom about the 20th of August, and last until after frost, up to October.

Brush Creek, Ky., Sept. 10. D. H. WEBB.

Friend W., the plant you send us is the well-known Spanish needle—*bidens*. In localities it furnishes great quantities of honey. We have had no report before that bees worked on it directly after a heavy rain. It must be yielding tremendously in your locality. It has been said, that a bee-keeper should locate where there is very rich soil and very poor farmers, in order to get honey from this plant, for its favorite place is poorly cultivated cornfields. See what is said elsewhere about Spanish needle on the rich river-bottoms of the Illinois and Mississippi Rivers.

THE DOVETAILED HIVE; HOW TO MAKE A WINTER HIVE IN KANSAS.

Having just begun last spring to learn to take care of bees, and having purchased 10 colonies in Dovetailed hives, I have been watching for instructions for wintering. In this latitude there is so much mild weather that it would be difficult to keep a cellar at the desired temperature for bees. Then, too, there is sometimes extremely cold weather for several days, followed again by warm winds. I do not like the thin-shell idea of strengthening the credit of the Dovetailed hive—not if the thin shell is put on the outside; but to place thin followers on each side, inside the hive, and a chaff cushion on top, is about the simplest thing to do. The A B C book says four to six frames are enough; and even if seven frames are left, there is room for a half-inch follower on each side. This is just what I settled down to: I removed one or two frames from each hive; and to those needing more supplies I uncapped one or two frames of honey and hung them over night in the second story, just drawing back the burlap at one corner, for the bees to get up. They did not fail to carry it all down in a single night, and a frosty night at that.

I have 13 colonies in the Mitchell hive, which is 25 inches long inside, and deeper than the Dovetailed. I shall cut these back as soon as I can drive the bees next spring into Dovetailed hives. They will make nine-frame hives, leaving room for a follower. I exhibited a Dovetailed hive at our county fair, and I learn to-day that it took the premium. EZRA YODER.

Paola, Kan., Oct. 21.

LETTER FROM FATHER LANGSTROTH.

Dear Friend Root:—In reply to your letter, inclosing a check for $50, sent to me by request of the N. A. Bee-keepers' Association, recently held at Keokuk, I would return my sincere thanks for their very kind and helpful remembrance of their old bee-keeping friend. I am still in a feeble and suffering condition, although much better than I have been for nearly two years. Thanking you for your many acts of kindness in the past, I remain

Yours affectionately,
L. L. LANGSTROTH.

Dayton, O., Nov 7, 1890.

CALIFORNIA ROBBER-FLY.

I regret to say that the sand-bees and mosquito sent by J. C. McCubbin, Selma, Cal., were ground to powder, and so can not be identified. I wish all would send insects in strong boxes, tin or wood, wrapped in cotton, then they come in good condition. A small tin box, like a cap-box, will go for a cent.

The large insect which was carrying the bee is an asilus fly, new to me. I wish it were not broken. It is one of the robber-flies. I have illustrated several in my *Bee-Keeper's Guide*, from which figures this could be easily identified. These bee-killers are usually gray and sober colored. This one is ornamented with brown, and is quite handsome. I should like very much to receive a perfect specimen. There are several of these bee-killers in the South, and it seems that California is not exempt. I hope that Mr. M. will try again, when I shall hope for better success.

BATS.

Mr. Thaddeus Smith, Pelee Island, Lake Erie, Ont., Can., wishes me to name a bat which he sends me. This bat is large, quite whitish, so that it is called the hoary bat. The scientific name is *Vespertilio pruinosus*. It is not very common, and is easily told by its whitish appearance, and a yellowish band across its throat. I was glad to get the specimen, as we had none in our museum. Bats often collect in great numbers in caves, where they domicile in summer and hibernate in winter. Bats are nocturnal, and feed on insects; so they are our friends.

CROWN BEARD.

Mr. Lewis K. Smith, Gainesboro, Jackson Co., Tenn., writes me regarding a plant which he says grows abundantly in his vicinity. The bees gather most of their fall crop of honey from it. He asks for name. I have never heard of this plant as a honey-plant before, I think. It is crown beard, or *Verbesina occidentalis*. It is closely related to beggar-ticks —*bidens*—and wild sunflowers. Indeed, it is next to the *Actinomeris Squarrosa*, which is much praised as a valuable honey-plant in West Virginia. No wonder that it affords honey. Many of its near relatives do so.

A. J. COOK.

Agricultural College, Mich., Oct. 27.

OUR HOMES.

Call unto me, and I will answer thee, and show thee great and mighty things, which thou knowest not.—JER. 33:2.

The question oftentimes comes up, "Have we a right to expect that God will answer us when we come to him in prayer, asking him to direct us in regard to some matter on which we are undecided?" We often feel at a loss to know just exactly where duty calls us, or, in other words, we wish to know just what God would have us do in regard to certain things. This matter has been on my mind more or less through all my experience as a Christian; and sometimes I have not only been puzzled but considerably troubled because those who seem devoted and willing make sad mistakes. In looking back through my own experience I have, however, been led to decide that, where we go to God in prayer about a thing, and then make a mistake, the fault is ours, and not that of the Judge of all the earth, nor is any thing amiss with any of his promises in his holy word. We are very anxious to do a thing. We pray over it, and then watch for some indication that God approves of this very thing. We delude ourselves in the belief that we have prayed over the matter in question, and that God said it was right, whereas *inclination* swayed our better judgment to such an extent that *self* said it was right, and not the promptings of the Holy Spirit. The trouble is, even while we prayed we were not in a spirit of entire submission to his holy will. We should be very careful in such matters. The attitude of our heart should be, "Here, Lord, am I, ready to obey, and listening for that still small voice to direct me. I am willing to sacrifice property, to bear toil and pain, if I can only be sure that such a course is exactly what thou wouldst have me to do." After having done this we need to be very careful that we are entirely submissive and unbiased. We need to be sure that our inclination does not at all enter into the final decision. If we do this, I am sure the promise in this little verse of our text will be fulfilled, and that we shall seldom if ever have just cause to regret taking the course we did.

When the time came around for the International Convention, it seemed almost folly for me to think of deserting my post. Our new factory was just roofed. The doors and windows were not in. Machinery was to be located, and important matters were to be decided, not only day by day, but hour by hour. Things were to be located that would be exceedingly hard to move if a mistake were made. Expensive men were on the ground waiting to be directed. How *could* I be gone five full days? I decided, for a couple of weeks before the time appointed, that it was not my duty to go. A good many would be thrown out of employment if I were absent. In talking with my pastor about it he gave me an idea, that at first I accepted as a jest or a piece of pleasantry; but afterward I decided there was an important truth in it that I specially needed. His suggestion was something like this: "Why, Bro. Root, you can solve the problem this way: Let your men have a vacation while you are gone; and if they can not well afford it, just keep their pay going all the same." While I am about so as to see most of my hands every hour or two, I can so direct them that their work is done properly. If I am absent, a good deal will necessarily be done in a wasteful or unprofitable way. This is true of any man who neglects his help, or who does not provide competent overseers. The friends here at home are exceedingly ready and willing to do as I wish; but the trouble is, when I am absent they do not *know* my wishes, and can not well know all the plans I have in mind. Therefore, in order to go away I must make up my mind to accept, as a matter of course, more or less unprofitable work, and perhaps also have more or less useless labor performed. As a rule, I think every man's first duty is to look after his own affairs. Why, even the Bible enjoins that. In Proverbs we read, "Seest thou a man diligent in business? he shall stand before kings, he shall not stand before mean men."

Three or four days before the time appointed, I began to pray very earnestly on the subject, asking God to tell me where duty lay; and I remember telling my wife that I felt sure my prayers would be answered—that is, it would be impressed on my mind whether I ought to go. For several days it seemed as if no light were to be given in regard to the matter. I could not see that the Holy Spirit dictated or impressed my mind either way. If it would not sound irreverent, I could have told the honest truth by saying to my wife, "So far God has said nothing to me about it." I should not like to use such an expression, however, for fear that many of my good friends would think me cranky. In fact, I should fear that I would be a little troubled about any of my friends if *they* should reply in just that sort of language. During the very wet fall that we have had, my wife and children have often asked me anxiously what the barometer said about the weather. A great many times I have replied evasively, or said nothing. But they often say, "Why don't you tell exactly what the barometer does say?" I reply, "For the simple truth that it does not say *any thing at all.* It neither goes up nor down, and I suppose we must conclude that the weather is to remain—at least for the present—just about as it is now." They have all learned to have *faith* in the barometer, for a great many times I have said to them, positively and decidedly, "The sun is surely coming out; and from the manner in which the mercury rises, and the rapidity with which it goes up, you will certainly see clear sky before noon, and I shall be much disappointed if we do not see it come out in a couple of hours." When I have time to keep my eye on the barometer, so as to watch it and give it a thump every hour or two, it is very rare I make a mistake. Now, friends, you have a good illustration right before you. Can we depend on the promptings of the Holy Spirit in the same way, or in a like way that we depend on the movements of the column of mercury? I think we can, and it gives me pleasure to say this. I have been thinking over it for several days, whether it were right and proper for me to tell you this, and to state it just as I have said it above; and I rejoice to feel, right now while I am talking, that the Holy Spirit says in my heart, "My child, you are safe and right in saying just what you have said. It pleases me to have you exhort your readers to *have faith* in just this way." Shortly before it became time to make preparations for my absence, I began to feel very plainly that God called upon me to go. The Holy Spirit seemed to direct that I should make arrangements according to the best of my human wisdom for work while I was absent, and then to drop care and anxiety, and leave home with an untroubled spirit, asking constantly for direction as to what I was to do. We have an illustration in the book of Acts. You will remember that Cornelius was sent to Joppa, to find Peter, who lodged with a tanner by the side of the sea. This man was to tell Cornelius what he ought to do. I have often thought of this passage. Does the Holy Spirit ever send us on like errands? I believe it does. Now,

please do not imagine, dear friends, that I had any idea in mind that there was any special great thing for me to do away off in Keokuk, Iowa. I only felt that it was God's wish that I should be present with the rest of the brethren, and do what I could to help matters along, and possibly to do something in a quiet and natural way for Christ Jesus.

No doubt this prompting of the Holy Spirit came through natural events and human agencies a good deal. Three different friends wrote they were looking forward with great pleasure to the time when they would shake hands with their old friend A. I. Root at the coming convention. Then when I thought of being absent, something seemed to tell me that I was doing wrong, and it began to lie as a heavy weight on my conscience; and when I considered the matter of changing my plans, and of going after all, peace and happiness began to come into my heart. For quite a time after leaving home I did not feel any enjoyment at all; but I decided that I would do my duty as well as I knew how, whether I enjoyed it or not. And I think, dear friends, this is one of the very best ways to secure the peace of God. Make up your mind that inclination must give way to duty, peace or no peace, and God will send the reward in his own time.

One of the first disappointments was to find that, when we arrived at Elyria, the Lake Shore train was two hours late. We did not know whether Dr. Mason expected to attend or not; but I invested 25 cents in a telegram. This telegram had the effect of waking *him* up, and of bringing him to the depot, even after he, like myself, had decided not to go. When we were within perhaps a hundred miles of Keokuk, a stranger sat down near us who eyed me very intently for some time. I finally asked him if he was not one of the bee-keeping friends on the way to the convention. He replied that he was, and added, "Are you not A. I. Root?"

I nodded assent. Then he said, "My name is Draper."

"A. N. Draper, of Upper Alton, Ill.?" said I, interrogatively.

He nodded, and we were old friends at once. Friend D. used to write for the *American Bee Journal*, before GLEANINGS had an existence. He had followed me, even to covering my bee-hives with stable manure, as I did years ago; and then he afterward put his bees in a cold-frame, as a good many others did in those old times. He risked all he had in the venture, then gave up bee-keeping in disgust, as he lost all. But, like a good many others, he came back again to it. Pretty soon another friend who lives on the banks of the Illinois River, Mr. J. M. Hambaugh, of Spring, Ill., came in. This latter friend had secured about 10,000 lbs. of Spanish-needle honey, gathered from the lowlands along the river. In his market, the honey from Spanish needle is now selling more readily, and is giving better satisfaction, than even white clover. It is of a beautiful amber color, and I think it is often sold as goldenrod honey.

The convention was one of the best I ever attended. The attendance was not only large, but our Western friends came and handed in their dollars in order that they might become members, more generally, I think, than in any other convention I ever attended. Perhaps I might mention right here, that one of the troubles in our conventions is in this very line. A good many attend every session, take great interest in the proceedings, and sometimes take part, to a considerable extent, in the debates; yet when the call is made for the necessary funds to keep up the necessary expenses, in many localities there has been a considerable hanging back. Dr. Miller, Dr. Mason, Prof. Cook, and others, have urged so hard that every one should hand in a dollar that sometimes we have almost had hard feelings in regard to the matter. If we move our national convention all over the United States, or, at least, over a great portion of it, as we have been doing, it happens, as a matter of course, that a great part of the members (and oftentimes the presiding officers) are made up of people who never attended before, and perhaps who may never attend again. This seems a little unfortunate; and yet if all parts of the United States are equally represented, it must be so to a greater or lesser extent. During this last session, arrangements were made whereby we might have a certain number, at least, who would be members year after year, whether they could be in attendance or not. This is secured by making anybody a life-member on the payment of $10.00. If I am correct, the editor of the *American Bee Journal* was the first one to pay $10.00 and become a life-member. Ernest and I have also agreed to become life-members, and I said at the convention that I thought the United States should furnish at least 25 who would pay a like sum, and hereafter be members for life. Now, then, who is there among our readers who is ready to stand by us for the purpose of making a permanent institution of the North American Bee-keepers' Society, as it is to be styled, in order that it may stand on a permanent basis, and not be left to be blown about by the wind, and dry up and die like autumn leaves? It is proposed to have it incorporated according to the laws of the United States, and it seems to me this would be a very sensible and wise proceeding. Further particulars in regard to the matter will be found in the *American Bee Journal*, as also a full report of the proceedings of the convention, which we do not give here, as we do not wish to have our pages contain something that most of our readers will see in the *American Bee Journal*.

I hope I may digress enough right here to urge every reader of GLEANINGS to subscribe for the *American Bee Journal* at once, if he does not now take it. Its editor has perhaps done more to keep up our conventions, report their proceedings, and labor for the general interest of the bee-keepers of America than any other one among us. The field occupied is so different from the one covered by GLEANINGS that you will not find much repetition if you take the two.

Now for the promise in our text. I soon began to realize why it was that God wanted me to go to Keokuk. A good many of the friends who were there had taken GLEANINGS almost since the time it was printed by windmill power. They knew me better than they knew their next-door neighbors, many of them, and they wanted to see me and shake hands. Perhaps some who have followed me all these years came more to see me than for almost any thing else. Please remember that I do not say this boastingly, but to show you that I should have been sadly out of place, and lacking in friendly, brotherly spirit, if I had allowed any thing to keep me away from such a gathering. I did not realize it fully until I came to read my paper. As it is hard for me to speak to a large roomful, I told them, before I commenced, that I should consider it a great favor if they would come up and occupy the front seats, so that we might have it more like a family gathering. Our good friend Mrs. Harrison started the movement by picking up her chair, and bringing it quite close up to the speaker, when there was a general move to following her example.

During the reading of my paper (see Our Homes, last issue), when I came to speak of

God's gifts to bee-keepers I digressed from my reading long enough to mention the Spanish-needle honey I had been told of (samples were on the table at my side) on the banks of the Illinois River, and suggested that God's gifts were many times lying near our own doors, unknown and unappreciated. A lady in the audience suggested there were untold acres of the same plant lying along the *Mississippi* River also. Somebody who lived further down stream gave us another corroboration of the statement, and pretty soon so many facts came in to support the spirit of my paper—have faith in God — that the president tried to call them to order. They had got to going, however; and in their eagerness to supply your humble servant with the facts he wanted, they forgot president, essay, and every thing else. Finally the president good-naturedly called a halt. Said he, in substance, "Why, who ever heard of such a thing as interrupting an essay to give your separate experiences? Let Bro. Root finish his paper, and then we shall be glad to have you discuss the matter to your hearts' content."

Some of them looked somewhat astonished, and perhaps a little put out, because they could not tell their story right then and there. But instead of feeling annoyed myself, it gave me a new thrill of joy to see how anxious these friends were to furnish me any information I called for in any particular line of our work. It touched me, too, to see how soon they felt acquainted with me, and treated me as if I were *really* "one of the family."

Later on, when they came to discuss important matters, I was surprised and astonished to see how eager and full of enthusiasm these Western friends were to understand more of the different questions that puzzle us in bee-keeping. As an illustration: The president asked for a show of hands in regard to the matter of using foundation—how many used it in full sheets? how many used only starters? how many practiced Hutchinson's plan of using only starters for hiving new swarms? how many used foundation in section boxes? Our good president, R. L. Taylor, seemed to have a happy faculty of bringing out all these points, and in getting every one in the room to have something to say in the matter, and at the same time not have valuable time wasted.

Some facts in regard to the value of sugar compared with honey for winter stores interested me greatly. President Taylor himself gave us the following most important item. Quite a number of colonies were fed on stores of sugar syrup, and an equal quantity were provided with stores of honey. The colonies were weighed, both in the spring and fall; and those having honey consumed nearly if not quite *twice* as many pounds of feed. I have been for years past fully satisfied that stores of sugar syrup are more wholesome, and a more concentrated food than any honey; but I was not prepared to find so great a difference. A great amount of questioning and experiences were given in this line, and the whole evidence seemed to be almost invariably in favor of sugar. A convention is the only possible place in which such a matter can be thoroughly discussed, and important facts like this settled. Bee-journals are good, and have their office, but we must have conventions also. I felt ashamed of myself for having ever entertained the thought that I might be excusable in staying away. At one of our temperance meetings some years ago, a reformed man told a little story of his soldier life. He said a young boy, who had enlisted contrary to the best judgment of his friends and relatives, once told his comrades that he was afraid he might show the "white feather" in a coming conflict. Said he, "Boys, if you see any indications in me of any thing of the sort, I just want you to take me by the collar and straighten me up, and hold me to my post." Our reformed friend remarked that he wished the Christian temperance people to take hold of him in the same way, if he got back; and my feeling during that whole convention is just expressed in the above. If I should again show any such foolish, short-sighted disposition to shirk and stay at home, I hope some of my good friends will take me by the collar, and straighten me up, reminding me of this passage in this present paper.

I think I never saw more facts of importance brought out in so short a time. The bright and expectant faces, the brief, simple testimonies, and the general feeling of brotherly love, and desire to help each other, were really wonderful. Before I knew it I was enjoying myself most intensely. Those thrills of joy that I have told you about, began to come into my heart, wave after wave. There were not very many present who had read the bee-journals, and experimented with bees, as long as I have. Perhaps *none* had read so much voluminous correspondence, and this enabled me to furnish important connecting links here and there. There was so much interest manifested that the president found it hard work to get them to adjourn at dinner time. After the adjournment, of course a great many gathered around the Roots, both old and young. Ernest's visit through York State had made him acquainted, not only with the York State people, but with friends away out west as well. A good many were inviting me to go home with them, or to look at something. But a white-haired German friend, Weyend by name, in a sort of comic way captured and ensnared your old friend completely, by a few brief sentences. His invitation was worded something as follows:

"Mr. Root goes with me. I can show him artesian wells, where the water comes out so as to make a little lake."

He had been reading GLEANINGS, and he knew well where I was deeply interested, and was ready to take advantage of it. He continued:

"Yes, there are beautiful fish in the ponds around the wells, and I will show you where the water goes down the bluff and carries a water-motor that runs a dynamo."

When he spoke these words he looked at Ernest in a comic sort of way, as much as to say, "You see I am going to have Ernest too;" and in a little time a party was organized to go and see these wonders in the suburbs of Keokuk. If you look now at the words in the latter part of our text, you will see there a promise—"and show thee great and mighty things which thou knowest not." I wish I could give you a picture of our good friend Weyend. May be we will some time; but for the present we must content ourselves with a pen-picture. He is an excellent type of a good-natured, jovial, enthusiastic son of the "fatherland." His quaint, peculiar ways, win friends at once, and a sort of dry native wit soon sets his companions into fits of laughter that are almost uncontrollable. For instance:

"Why, Mr. W., you are taking us on top of a great hill. Surely the artesian wells are not up here, are they? What should put it into the head of any man to think of drilling a well on top of this great bluff?"

These wells belong to a wealthy starch-manufacturer, Mr. J. C. Hubinger. Friend W. explained:

"Why, Mr. Hubinger he has got lots of money, and he wanted a well right up there, and when he wants any thing he wants it *bad!*"

"No doubt he wanted it bad; but what assurance had he that he would find water to come even to the top of the ground, on such a great bluff as this—more than 100 feet above the waters of the Mississippi River?"

"Why, Mr. Hubinger he *got* to have it; and when he *got* to have a thing it *must* come, so he kept on drilling."

We soon came to one of the wells. There were three in all, and each one of them was sending out its treasures of water into beautifully paved and cemented reservoirs at our feet. One of the wells was in process of drilling; and as I approached the driller I asked, "How much water comes out of the top of this well in a minute?"

"About 900 gallons."

"How far down are you?"

"About 1820 feet."

I felt anxious to see what sort of rock came up, so I asked, "How often do you use the sand-pump?" thinking we might wait and see the operation, and see what would come out. To my surprise, however, he replied, "Why, we don't sand-pump at all. The stream of water which you see washes out all the sand and pounded rock; so all we have to do is to keep right on drilling until the drill is pulled up to sharpen it."

Now, friends, here is something intensely interesting. These vast streams of water that come out with such force as to go to the top of this bluff come constantly from fissures in the rock they are drilling, and these fissures are so frequent that all debris is washed out. We descended a bank, so steep that it made Dr. Miller puff and blow, and found, many feet below, almost on a level with the river, a *hundred-horse-power* turbine water-wheel. Another new water-motor was being put in place to give additional power. These water-motors carried the latest improved dynamos, and great wires ran up to the city to furnish electric lights. The artesian wells spout forth their treasures through the day-time, which is stored up in those large reservoirs, or miniature lakes, they might be called. When it gets dusk, the great valves are opened, and the turbines with their immense power propel the dynamos that send the stream of electricity up through the town.* Is it not wonderful? and does it not verify the promise of our text?

The next day we visited the Dadants, and saw their factory for the production of the beautiful foundation that rivals any thing else made in the world, and I had another treat. The Dadants have perhaps the finest factory for foundation in the world. Their output during 1890 was something like 85,000 lbs., while our own was only about 30,000 lbs.

"But why in the world, friends, do you not use steam power when you are doing so large a business?"

Our good friend C. P. replied:

"Mr. Root, there is just one thing that makes us hold on. A company is already organized, with a capital of two millions of dollars, to take the Mississippi River at the rapids you observed, and make it turn water-motors that shall move dynamos to send electricity all over the surrounding country, to furnish power wherever it is needed; and we would rather have a big wire, and have the power, rather than to have a steam-engine and be obliged to haul coal away out here."

So you see, dear friends, what there is before us in the future.

You may perhaps know that a company has been incorporated under the laws of New York, and they have already begun the work of digging a very deep canal parallel with the rapids of the Niagara River, for the purpose of taking advantage of the great descent of the river here for about half a mile above the falls, and ending near the base of the cataract. When the full capacity of the fall is employed it is believed that it will be equivalent to 700,000 horse-power, and this at no expense save for repairs, as the supply is perfectly uniform the year round. To do these great things, however, we must work together. No man can accomplish any thing by being a Robinson Crusoe. All these great projects and movements are the result of the combined efforts of great numbers of earnest thinkers and workers. Friend Weyend gave us a bright illustration of his friend Hubinger, the starch-man. I do not know whether he is a Christian or not; but he shows an element of Christianity, in one sense at least. He goes down into those steep bluffs a quarter of a mile or more in pursuit of Nature's pent-up waters. They have utilized them by the most efficient water-motors known, and finally they set the water-motors to driving these wonderful dynamos, a project which is a result of the thinking and stirring brains of the present decade. Friend Weyend's comical "got to have it" expresses the energy and determination of the man. And is not the thought on a line with the Bible promise, "Seek, and ye shall find; knock, and it shall be opened unto you"? But to do this we must be in intimate partnership with our fellow-men. Conventions made up of people interested in special pursuits are on the highway to these attainments, especially where these conventions are opened with prayer, and interspersed with songs and hymns, as was every session of the convention at Keokuk.

Call unto me, and I will answer thee, and show thee great and mighty things which thou knowest not.

* Out on the hill before me, our big windmill is standing idle. It has filled its tank, and has been days and weeks waiting for a job. Well, all that is needed to let this windmill use its surplus power for lighting our house is a little water-motor and a dynamo to match. It will easily pump water enough during the day to run dynamos enough to light all the private dwellings in "Rootville."

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

THE OHIO EXPERIMENT-STATION REPORT ON STRAWBERRIES.

This is sent free to every resident of the State of Ohio on application. Address Experiment Station, Columbus, O. We presume it will be sent to others for a couple of stamps, although we do not know. If any of you wish a report by disinterested parties in regard to all new strawberries offered during the past year or two, you want this report. Not only does it chronicle the tests on the Experiment Grounds at Columbus, but Prof. Green visited many of the leading strawberry-growers of the State, while the berries were fruiting. You will remember that he had just left Matthew Crawford's at the time I came on the grounds. It almost makes one smile to see how nearly their decision agrees with mine. For instance, in their Summary No. 2, we read:

The following varieties have been thoroughly tested, and are suited to the wants of those who

FACTS! FACTS! FACTS!

The Bee-Keepers' Directory, 125 pages, price $1 00. **Thirty Years Among the Bees,** 82 pages, price 50 cts. **The Am. Apiculturist,** one year, price 75 cts. The above paper and books contain all the information necessary to produce honey by tons, and to rear queens by thousands. All mailed for **$1.25.** Sample copies of Apiculturist free. Address **HENRY ALLEY, Wenham, Mass.**

30 Quarto pages—**50 cents** a year.

AN Elegant Monthly for the **FAMILY and FIRESIDE.** Printed in the highest style of the art, and embellished with magnificent Engravings. Sample FREE. Agents Wanted.

THOMAS G. NEWMAN AND SON, PUBLISHERS

246 East Madison St., - CHICAGO, ILL.

☞In responding to this advertisement mention GLEANINGS.

Pratt's Patent Binding Clamps.

For compressing sections and frames. It can be attached to inside of any hive without tools. Specially adapted to the new Dovetailed hive. Stronger and cheaper than thumb screws. It does away with all loose parts. Send for free description.

21-23-1d **E. L. PRATT,**
Pratt Bee Farm, Beverly, Mass.

☞In responding to this advertisement mention GLEANINGS.

THE BEST HOLIDAY GIFT | A MUSICAL INSTRUMENT
SEND FOR CATALOGUE AND PRICE LIST. | MURRAY & HEISS CLEVELAND, O. DEALERS IN MUSICAL GOODS.

☞In responding to this advertisement mention GLEANINGS.

FOR LIGHT AND DARK FERRETS,

and pure Poland-China Swine, address

N. A. KNAPP,
Rochester, Lorain Co., O.

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EUREKA FRAME MACHINE.

Something every bee-keeper should have.
For price and particulars address

24-23db **F. W. LAMM,**
Box 106, Somerville, Butler Co., O.

Please mention this paper. 24-23db

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.

tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.

☞In responding to this advertisement mention GLEANINGS.

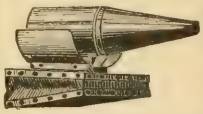
SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**

6tfdb **Rock Falls, Illinois.**

Please mention this paper.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	...	$2.00
Conqueror "	3 "	"	...	1.75
Large "	2½ "	"	...	1.50
Extra (wide shield)	2 "	"	...	1.25
Plain (narrow ")	2 "	"	...	1.00
Little Wonder,	1¾ "	"	...	65
Uncapping Knife			...	1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Neb.; G. L. Tinker, New Philadelphia, O.. E. Kretchmer, Red Oak, Ia.; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.;** R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to

4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

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Special Notices.

POULTRY-NETTING ADVANCES DEC. 20.

Bear in mind, that only a little over two weeks remain in which you can buy wire netting at the present low prices. The 51st page of the new catalogue shows what the price will be next year. Notice the list of remnants on another page, which is subject to 10% discount before Jan. 1.

ORDERS FOR MACHINERY.

Some few orders for machinery have been somewhat delayed on account of the interruption and large amount of extra machine work incurred by moving into our new building. We are glad to say, however, that our workers in iron and steel are now nicely housed in a large airy room about three times the size of their former quarters, and will soon be in shape to turn out promptly all kinds of machine work.

A SECOND-HAND PLANER AT A BARGAIN.

We have on hand for sale a 24-inch heavy pony planer, made by Graham, of Rochester, in good repair. It cost new $240; was used about three years in our works when we sent it back to the works and had it rebuilt new at an expense of $50 and freight both ways. We used it only four or five months when we were obliged to put in its place a large double-surface planer to do our work. We offer the above machine, all ready to run, free on board cars, for $150.

OUR PREMIUM LIST.

Some of you may be wondering what is keeping our premium list so late this year. The fact is, we shall not have any, but send you our catalogue instead. We shall offer special premiums from time to time during the coming months. For the present we wish to say that you may select any article in our catalogue as a premium; and each subscription you secure for GLEANINGS will count 25 cents toward the price of it, *provided* that in your list of names you have as many new subscriptions as renewals. Remember, the remaining numbers of this year after the subscription is received are sent free to new subscribers.

DISCOUNTS FOR EARLY ORDERS.

By the new catalogue you will notice that the 4% discount we have been allowing the past month is extended to December instead of dropping to 3%. A good many are taking advantage of these early-order discounts, and are sending us large orders. We are also shipping a number of carload orders to distant points. We have just shipped a carload of hives and sections to friend Ball, of Reno, Nev., who sent us the car of comb honey.

We are also loading a car of supplies for the Bee-keepers' Association of Maricopa Co., Ariz., from whom we received a car of honey in August, and are daily expecting another. We have orders in for three or four more carloads for various points. We expect to load a car for Portland, Ore., within a month; and if any of our readers in Oregon or Washington wish to secure carload rates of freight as far as Portland they should send their orders in at once. We hope, also, to make up one or more cars for Southern California within the next six weeks or two months at the outside; and if any in that section want to avail themselves of this opportunity they would do well to write or send their orders very soon.

NEW ENLARGED EDITION OF OUR CATALOGUE.

We have given our illustrated catalogue and price list a thorough revision, and added eight more pages of matter. In order that our readers may see what we have done, and be sure to have a new catalogue to order from, we are mailing a copy to each subscriber of GLEANINGS. If you fail to get it with this, or soon after, drop us a card and we will mail another.

I will briefly mention a few of the alterations, additions, and changes in price. The matter has been re-arranged a good deal; and in order that you may easily find any thing that you want, we have added a comprehensive index on the inside of front cover. The catalogue was formerly arranged with a view of making articles come in alphabetical order. This could not be strictly followed, as kindred articles, of necessity, must sometimes be mentioned together, though not beginning with the same letter. We have given up the alphabetical order, and arranged in a natural order, which you will notice as you turn over the pages. Notice the additional matter in the introductory pages, inducements to order early, and discount for so doing.

The following articles have advanced in price: Perforated zinc and honey-boards, all kinds; Simplicity feeders; a few of the hives have changed in price. Tin separators, tin pails, tin plate, and galvanized poultry-netting are advanced. A number of new articles have been added, which we will leave you to discover.

The discounts for large cash orders have been abolished, and the discounts for early orders take their place. You will observe, however, that the early-order discount applies only to such articles as we manufacture, found on pages 10 to 27 of the list. Much of the matter is entirely re-written. Some instructions are given in the matter of feeding and wintering. Further changes, especially in the Counter Store list, are anticipated. Any suggestions from our patrons that will lead to making the catalogue more helpful and convenient to order from, will be appreciated.

Kind Words from our Customers.

GLEANINGS A PROFITABLE ADVERTISER.

I have been a constant advertiser in GLEANINGS for over four years, and can honestly say it is the best medium I ever used. C. M. GOODSPEED.

Skaneateles, N. Y., Nov. 17.

MORE ADVERTISING THAT PAID.

I am well pleased with the results of my advertising in GLEANINGS. I am all sold out of queens, and sending back money nearly every day. I received enough orders to take all the queens I had left in four days after my last ad't was out, and I had quite a large number of them too. ELMER HUTCHINSON.

Rogersville, Mich., Oct. 27.

A BIG BARGAIN FOR $1.00.

SPECIAL CROPS, one year, $1.00. MONTREAL FAMILY HERALD AND STAR (weekly), $1.00. GOLDEN CENSOR (Rockford, Ill., weekly), $1.25.

All of above one full year for $1 00. Special Crops and either one of the others for 50 cts. This offer is good until Dec. 26. Renewals accepted same as new subs. Address **C. M. GOODSPEED, Skaneateles, N. Y.**

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

50 STANDS of bees; two Italians, others hybrid and blacks in 10-frame Simplicity and 8-frame Dovetailed hives. Price $4 each.

J. HAMMOND,
Buena Vista, Scioto Co., Ohio.

☞In responding to this advertisement mention GLEANINGS.

THE CANADIAN

Bee Journal	Poultry Journal
Edited by D. A. Jones.	*Edited by W. C. G. Peter.*
75c. Per	75c. Per Year.

These are published separately, alternate weeks, and are edited by live practical men, and contributed to by the best writers. Both Journals are interesting, and are alike valuable to the expert and amateur. Sample copies free. Both Journals one year to one address $1. Until June 1st we will send either Journal on trial trip for 6 months for 25 cts.

The D. A. Jones Co., Ld., Beeton, Ont.

☞Please mention GLEANINGS. b-11d

PURE WHITE PLYMOUTH ROCKS.

10 Cockerels for sale at $1.00 each, if taken this month. **JOHN C. GILLILAND, Bloomfield, Ind.**

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-grooved sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16 tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

Wants or Exchange Department.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

WANTED.—To exchange warranted Italian queens to be shipped early in June and July, 1891, for solo alto horn or tenor B-flat trombone. Write and give particulars to JAMES WOOD,
22-23-d North Prescott, Mass.

WANTED.—To exchange forest trees, for strawberry-plants, grapevines, and all kinds of small fruit-trees or offers. W. G. MCLENDON,
Gaines' Landing, Chicot Co., Ark.

WANTED.—To exchange Italian bees in L. hives for beagle hounds, or will exchange fox-hounds for beagles. J. B. MITCHELL,
23-24d Hawkinsville, Pulaski Co., Ga.

WANTED.—To exchange Perfect Hatcher, 176 eggs, cost $75.00; and brooder, 300 chicks, cost $38.00; been used at fairs a little, for Italian or hybrid bees.
23d ELIZABETH DIMICK, Burns, Alle. Co., N. Y.

WANTED.—To exchange one 6x9 self-inking press, with type, for 10-inch fdn. mill and wax-extractor, or best offers; also a 6-inch fdn.-mill, for wax.
53-24d L. L. ISENHOWER, Reading, Pa.

WANTED.—To exchange new hearse for bees, in good L. hives, or comb honey.
23d J. H. TATMAN, Connersville, Ind.

WANTED.—To exchange a Breed's Universal Weeder, used one season, price $12.00, for new Simplicity or Dovetailed hives or offers. 23d
ELMER E. SHARP, South Greece, Monroe Co., N. Y.

WANTED.—To exchange bee-supplies for empty combs. Bee-friends, let us hear from you. 23d
J. B. MURRAY, Ada, Hardin Co., Ohio.

WANTED.—To correspond with parties who wish to exchange beeswax for supplies.
GEO. RALL, Frenchville, Trem. Co., Wis.

WANTED.—Apicultural offers in exchange for plain and fancy job printing. 23-24d
C. W. DAYTON, Clinton, Rock Co., Wis.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made.
EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. *On all orders sent before Jan. 1, 1891, deduct 10 per cent.* These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

Width in In's.	Size of Mesh.	No. of Wire.	Cts. Pr Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece.
12	2	20	⅝	68, 50, 48, 47, 33, 30; 18 in., 50, 34, 24; 72 in., 95, 27.
36	2	20	⅝	144, 66, 60, 54, 48, 38, 24, 22, 18, 17.
48	2	20	⅝	70, 59, 55, 49, 47, 43, 25, 25, 6; 60 in., 47, 42, 32, 24.
12	2	19	¾	100, 92, 40.
18	2	19	¾	143, 103, 60, 50, 41, 28.
36	2	19	¾	58, 55, 51, 50, 47, 47, 45, 45, 43, 40, 38, 23, 22, 20, 19.
42	2	19	¾	50, 43, 15.
48	2	19	¾	89, 80, 80, 60, 57, 49, 43, 40, 33, 30, 29, 26, 26, 23, 20, 14.
60	2	19	¾	98, 92, 48, 44, 42, 38, 32, 28, 25, 21, 20, 11, 9.
72	2	19	¾	134, 130, 120, 110, 108, 103, 103, 100, 94, 88, 81, 73, 72, 68, 67, 60, 50, 50, 48, 26, 25, 24, 20, 19.
24	2	18	1	65, 23, 15; 12 in., 107, 43.
36	2	18	1	144, 122, 100, 50, 43, 35, 17; 30 inches wide, 63, 25.
48	2	18	1	105, 100, 44, 39, 29, 23; 42 inches wide, 60.
72	2	18	1	61, 53, 48, 47, 37, 35, 22, 22; 60 in. wide, 67, 20.
36	2	17	1¼	42, 23, 15; 24 in. wide, 77.
48	2	17	1¼	78, 55, 32; 60 in. wide, 25.
12	2	16	1½	78, 59, 11; 18 in. wide, 72, 72, 40; 24 in. wide, 94, 88.
36	2	16	1½	36, 34, 32, 23, 14; 30 in. wide, 46, 44, 24.
72	2	16	1½	60, 58, 56; 48 in. wide, 70, 48, 46, 40, 26, 19; 60 in., 62.
18	2	15	2	87, 61, 30; 12 in. wide, 100.
24	2	15	2	120, 100, 90, 69, 52, 33, 33, 13, 12.
30	2	15	2	127, 40, 27, 25, 21, 21, 15, 6; 60 in. wide, 21, 20.
36	2	15	2	98, 97, 47, 38, 38, 37, 24, 18, 17, 16, 15, 13, 7, 7, 7, 6, 5.
42	2	15	2	125, 121, 35, 26, 23, 20, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 29, 26, 22, 14.
36	2	14	3	29; 42 in., 71
24	1½	20	1	41; 18 in. wide, 14; 30 in., 14.
24	1½	19	1	100, 66, 40; 42 in. wide, 85, 59.
30	1½	19	1	33, 33, 30; 36 in. wide, 47, 47, 45, 30.
48	1½	19	1	107, 72, 52, 35, 18; 60 in. wide, 56; 72 in., 64, 63, 10.
18	1½	18	1⅛	40; 30 in., 110.
48	1½	18	1⅛	34, 30, 28; 60 in., 65, 34, 19; 54 in., 12.
30	1½	16	2½	79; 36 in., 14, 7; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22, 8.
36	1¼	19	1⅝	48, 12, 10; 24 in., 86, 42; 30 in., 75; 48 in., 78.
36	1¼	18	2	15, 11, 11, 10; 30 in., 6; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	63; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40, 25; 60 in., 26; 18 in., 82, 50.
32	1	18	2½	85, 32; 9 in., 32; 10 in., 20; 24 in., 25; 30 in., 69, 51.
36	1	18	2½	37, 32; 48 in., 30; 60 in., 59.
9	¾	20	2¾	33, 7; 30 in., 37; 36 in., 75, 55.
9	¾	19	3	32; 24 in., 130.
24	3	16	1	46, 19; 36 in., 86; 42 in., 14.
36	3	15	1⅛	63; 48 in., 60.
24	3	14	1⅞	150, 18½; 48 in., 45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23
22	4	14	4	107, 68, 35, 17, 15, 10.
30	4	14	4½	52, 47, 36, 33, 30, 29 19, 18, 13, 9.
31	4	14	4¾	43, 37, 34, 29, 24, 23, 18.
42	4	14	5	144, 117, 68, 62, 62, 60, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44, 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—Receipts up to date 1900 cases of comb honey, and 212 packages of extracted. The market is very quiet at present, and prices remain unchanged. CHAS. McCULLOCH & Co.,
Nov. 19. 339 Broadway, Albany, N. Y.

CINCINNATI. *Honey.*—There is a good demand for all kinds of honey. Arrivals are fair of all but comb honey and Southern extracted. Small lots only of each are arriving and disposed of on arrival. California honey seems to be as highly appreciated in our market as the best clover honey. We quote choice comb honey nominal, at 16@18c. Extracted honey at 5½@8c on arrival. *Beeswax*, there is a good demand at 24@26c on arrival for good to choice yellow. CHAS. F. MUTH & SON,
Nov. 12. Cincinnati, Ohio.

BOSTON.—*Honey.*—Fancy white one-pound combs selling at 19@20c; fair to good, 17@18. No 2-lb. combs in this market. Buckwheat or off-colored honey not wanted at any price. Extracted selling at 7½@8½. No beeswax on hand. Demand good.
BLAKE & RIPLEY,
Nov. 19. Boston, Mass.

RIVERSIDE.—*Honey.*—Comb honey all shipped out of Southern California, and nine-tenths of the extracted. Latter selling in car lots to-day; white, 6@6¼; light amber, 5¾@6.
GRIFFIN & SKELLEY COMPANY,
Nov. 12. Riverside, Cal.

ST. LOUIS.—*Honey.*—We note an active inquiry for strained and extracted honey in barrels at 6c; cans, 7½; comb, white clover, 18@18½; dark, 15½@16½. *Beeswax*, prime, 25. D. G. TUTT GROCER CO.,
Nov. 19. St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Extracted honey is very firm and advancing, with a heavy demand for Europe as well as for the East, and we quote now 6@6½ for eastern shipment. Comb honey is scarce, and wanted at 13@14c for 1-lb. comb honey, and 10@12 for 2-lb. comb honey. *Beeswax* is scarce, and firm at about 23@24. SCHACHT, LEMCKE & STEINER,
Oct. 22. 16 & 18 Drum St., San Francisco, Cal.

DETROIT.—*Honey.*—The demand for comb honey continues good, and brings 16c readily if a fair article. Extracted, 7@8. *Beeswax*, 27@28.
M. H. HUNT.
Bell Branch, Mich., Nov. 20, 1890.

ST. LOUIS.—*Honey.*—We quote choice white-clover honey in 1-lb. sections, single tier, 18c; fancy, 20c; double tier, 17@18. Dark and broken to fair stock, 12@15. Extracted, in cans, 8@10; dark, 6@7; barrels, 5½@7, as to quality. *Beeswax*, prime, 25½@26; dark, less. The demand for honey is good, and the stocks here are very light. W. B. WESTCOTT & Co.,
Nov. 24. St. Louis, Mo.

FOR SALE.—3000 lbs. light extracted honey in 60-lb. tin cans; and 800 lbs. nice comb honey in 12-lb. crates. Delivered on cars at 10c for extracted, and 18c for comb. S. A. SHUCK, Liverpool, Ill.

FOR SALE.—One barrel of extracted honey, gathered mainly from false boneset and heartsease. This honey is well ripened and of fine flavor. Will take 8c per lb., f. o. b. here. Can put it up in 60-lb. square tin cans, at 8½c per lb. Cans are boxed two in a box. Correspondence solicited.
R. B. LEAHY, Higginsville, Mo.

WANTED.—Extracted honey, either white clover or linn. Send sample and quote lowest cash price.
WALTER S. POUDER,
175 E. Walnut St., Indianapolis, Ind.

FOR SALE.—One keg of No. 1 fancy clover honey; net weight, 111 lbs. $10.00 buys it delivered on cars at Alamo. Address O. H. TOWNSEND,
Alamo, Kal. Co., Mich.

WANTED.—White comb and extracted honey; state price, package, etc. B. WALKER, 17tfdb
Capac, Mich., or Prairie du Chien, Wis.

FOR SALE.—Choice honey in sections, cans, and C. pails. Send for price list to OLIVER FOSTER,
12-1fdb. Mt. Vernon, Ia.

WANTED.—Southern honey. Will pay 5½c cash on arrival for good Southern honey.
CHAS. F. MUTH & SON,
22-23-24-1-d Cincinnati, O.

WANTED. One or two thousands pounds of nice comb honey. Write, giving amount on hand and price wanted. A. D. ELLINGWOOD, Berlin [illegible] .H.
17tfdb

FOR SALE.—50,000 lbs. of extra fine sage honey in 60 lb. tin cans. Also two carloads of light amber honey, for sale at 6c per lb., f. o. b.
L. E. MERCER & S[illegible] Ventura, Ventura Co., Cal.

WANTED.

I want to purchase at once, a large lot of

Light - Colored Combs of Honey

IN SIMPLICITY FRAMES.

Must be built upon wired foundation. Each frame, with honey, to weigh not less than three pounds. Correspondence solicited.

GEO. D. POWELL,

81 & 83 Third St., Brooklyn, N. Y.

☞In responding to this advertisement mention GLEANINGS.

NEW FIRM.

W. D. SOPER & CO.

We are now in shape to manufacture every thing needed in the apiary. Hives, sections, packing-boxes, etc., made to order. Get our prices before buying elsewhere. *W. D. SOPER & CO.,*
19-17d *118 & 120 Washington St., Jackson, Mich.*
Please mention this paper.

TO SUIT YOUR FANCY.

I will breed in 1891 both the **Five-Banded Golden** and A. I. ROOT'S strain of **"Honey"** Italian **Queens.** Orders booked now; pay when queens arrive. Every queen warranted. No blacks. Inclose stamp for prices.
JACOB T. TIMPE, Grand Ledge, Mich.
☞In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS,
TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.
PERFECTION COLD - BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON,*
Cincinnati, Ohio.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

1890 ITALIAN QUEENS FOR BUSINESS.
18tfdb W. H. LAWS, Lavaca, Ark

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MANUM AT HOME.

THIN OR THICK TOP-FRAMES IN VERMONT: THE PROSPECTS FOR ANOTHER SEASON.

"Walk in, Charles. You are just the chap I want to see. I have been wishing some one would come in to chat with me. I have not had a good talk on bees since Mr. Root was here. I wish you had been here that day. You would have been interested in his talk on wide-thick top-bars and closed-end frames. Why, he had, as it were, every pocket stuffed full of wide end-bars, and a bundle of wide-deep top-bars under each arm, which he had collected while journeying through the State of New York; and, judging by the way he clung to them, I concluded he intended to take them all home with him."

"Well, how came he to become so greatly interested in so much surplus lumber?" asks Charles.

"Well, you know there has been much said in GLEANINGS of late on this subject, very many claiming that deep top-bars are a sure preventive of burr-combs; and many of the advocates of "deep top-bars" have attempted to show by their well-written articles that they are a success, and our young editor has caught the fever, and has got it bad. How long a run he will have, depends altogether upon what kind of remedies he takes, and in how large doses."

"I have never used top-bars any thicker than ⅜," says Charles, "and I can hardly see the need of their being any thicker, unless it may be to prevent sagging; but I have no trouble with mine sagging; and surely with ⅞-thick bars there is ⅜ of an inch to each frame of lost room; and, besides, there is just so much more space from the brood to the sections, that the bees have to travel over, to say nothing of the extra expense in lumber and work. Now, Manum, after talking with Ernest and reading the different articles on the subject, what is your opinion as to the advantage the thick top-bars have over the thin, or ⅜ bars? Do you think they will entirely prevent burr or brace combs being built?"

"Well, Charles, I will say to you just as I did to Ernest, that I have never used thicker top-bars than ⅜ (mine now are all $\frac{5}{16}$), hence I do not consider myself prepared to decide, much less to advise. But I have had some experience with various kinds of hives and bees in different locations and in varied seasons, and I have pretty much come to the conclusion that the cause of the building of burr and brace combs is traceable to the strain of bees and the management or attention given the bees during *any* honey-flow, but more especially a late flow of honey. Of course, an improper space between the top of the frame and the bottom of the honey-board or bottom of sections, as well as the improper spacing of combs, has much to do, I believe, with burr-combs. But my experience of last fall, with a late flow of honey, leads me to believe that the one great cause of so much cry over burr-combs is due to a *late* flow of honey, which stimulates the bee instinct to fill up every vacant place or crevice at the approach of cold weather; hence these brace and burr combs are built to keep every thing secure and in a rigid position. This late flow, coming, as it does in most localities, after the surplus receptacles are removed, and being, as a matter of course, somewhat cramped for room, they have the very best of opportunity to exercise their bee-instinct to hedge in, much as we Northerners do for the winter, during our Indian summer. This fact we had the best of opportunity to observe last fall; for, you will remember, quite a number of my hives, as well as your own, were pretty well stuck up with burr-combs, especially the strong colonies that were full of honey. Therefore I am of the opinion that deep top-bars will not prevent the building of burr-combs during a good late flow of honey, or during any flow of honey when there is no other place to store it than in the brood-

chamber. However, there are very many extensive bee-keepers who use and recommend them, as well as closed-end frames. Notwithstanding that, as yet I do not feel the need of adopting them. They may be very essential in some localities, for surely some of our brightest lights say they are a success. I am, therefore, of the opinion that we Vermonters do not know it all yet. But, Charles, I can not help believing there is a little too much stress put upon the superiority of thick top-bars over thin ones."

"Have you got your bees all fed up for the winter?" asks Charles.

"Yes, all fed and packed, and my bee-work is done for this season. By reducing my number of colonies to a much less number than I have had for a number of years, I was able to feed them up to 25 pounds each, with only 14 barrels of sugar."

"Why! I thought you always fed up to 30 pounds," says Charles.

"Yes, I have usually; but, you see, when I came to examine my purse I found it rather thin. So I concluded to risk them with 25 pounds. That will winter them, and I can feed them in May, should they get nothing from soft maples and willows.

"What is the prospect for another year, judging from the present outlook?"

"Well, Charles, I never felt more hopeful in my life than I do this fall. Every thing, to me, looks very promising. Surely clover never looked better at this season of the year than it does this fall; and next year, being our *full* basswood year, it does seem to me that we ought to get another boom; and, with this hope uppermost in my mind, I am going to prepare for it this winter, in order to be ready for whatever nature may have in store for me. I feel so confident that we are to have an extra good honey crop next year that I am going to prepare and have in readiness 128 sections to each colony that I now have; that will be eight clamps, of 16 sections each, to the colony."

"Well, surely, Manum, you are counting on a large crop, sure. I think 100 sections to the colony would be enough."

"Yes, Charles, I am; and perhaps I am making too extensive preparations; but I believe it is well to be ready, and to get ready during the long winter, so as not to be obliged to sit up hot summer nights, when I am very tired, to prepare sections to meet the demands of a rush in the honey-flow. Be ye ready is the word."

Bristol, Vt., Nov., 1890. A. E. Manum.

I should have been very glad to have met your friend Charles, but perhaps we can talk it over yet. I *think* I can explain our apparent differences. You Vermonters, or, at least, those bee-keepers round about you, use the Manum frame, the size of which is very nearly the crosswise Langstroth. Your top-bar is only about two-thirds the length of the top-bar on the Langstroth frame; hence I am not surprised that you and your friend should not be troubled with sagging of ⅜ bars, when those of us using the Langstroth frame are. Dr. Miller, whom I have just visited, opened up a number of colonies for me. He has used exclusively, for years, top-bars ⅜ inch thick; but you could scarcely find in his apiary a bar of that thickness that had not sagged more or less, and I think you will find about that state of affairs in most apiaries using the thin bars of Langstroth length, where the same is not supported by diagonal wires and a tin bar; and the majority of apiarists, if I am correctly informed, do not so brace their top-bars. To sum it up, your top-bar ⅜ would be about equivalent to a Langstroth top-bar of ⅝; and it begins to look as if ⅝ inch thick, and a full inch wide, would answer.

There is no doubt that the strain of bees has something to do in the matter of building much or little burr-comb. We have observed the same thing in our own apiaries. The point is, we want to make *all* strains of bees quit that unnecessary work.

When I visited your place I was surprised that you did not have burr-combs on your top-bars, to the extent we do. It is quite likely that your bees do not build as many as the average Italians; but I think you told me that you used only ¼-inch bee-space, and your bars were an inch wide. Either one of these factors alone, outside of any disposition on the part of the bees, would tend very materially to diminish the building of brace-combs.

Next time I visit you, friend M., I hope your friend Charles will be present. Possibly I am now over-enthusiastic, and the next time I visit you I may have changed my views a little. I don't wish to ever get to that point where I *won't* be set right if wrong. E. R.

THE RIGHT BEE-SPACE.

THE BURR-COMB QUESTION, AND THE SPACING OF FRAMES.

Referring to the burr-comb question, I do not understand why Mr. Elwood's inch-wide by ⅝-thick top-bars with distances "fixed" with closed end-bars are any better than the same bars would be with distances fixed with a spacing-stick or measure. The secret, probably, is in the inch-wide top-bars with ⅜ spacing and no sagging. This fall my bees seem to be shoving up the quilts, and building brace-combs between the quilts and brood-frames, leaving little passageways for themselves. Measuring the ones just the right height for the bees, I find them an exact $\frac{5}{16}$. From this I should conclude that the right distance between the brood-combs and supers is $\frac{3}{16}$ of an inch. The distance between the top-bars should be twice $\frac{3}{16}$, or ⅜, the old Langstroth bee-space. Then with the 1⅜ spacing, give us the 1-inch top-bar, and we have the ⅜ space between the bars.

The sections in T supers can be held square with an extra set of T tins between the tops of the sections, the same as the bottom. The combined crate has given me the best satisfaction so far for a super, on account of the bars with insets to suit the sections. I presume the section-holders would do as well, although I have not tried them yet.

EGGS IN THE MANUFACTURE OF ROYAL JELLY.

Two or three experiments this summer incline me to the idea that bees use eggs in the manufacture of royal jelly for queen-cells. I have not yet been able to prove or disprove the idea. I wish somebody with more time would try it.

A drone is a son of his mother, but not of his father. In fact, he has no father. Although he has no father, yet he is a grandson of his

grandfather. He is only a half-brother to his mother's daughters. According to the above theory, it is important that we know the good qualities of the drone's grandparents when we wish to rear a special set of drones.

A queen lays a while, then takes a rest. I suppose she goes to "clucking," like an old hen. When she gets to "clucking," then she swarms if honey is coming in plentifully. Some queens, like old hens, "cluck" more than others.

Bonney, Pa., Oct. 14. PHILO S. DILWORTH.

It doesn't matter how you fix frames, as far as the burr-comb question is concerned. The point is, *convenience* of the one or the other method. I feel very sure that frames fastened with separate and removable spacing-sticks can not be handled as rapidly as the Hoffman or closed-end frames. A visit to one of the large apiaries using either one of these frames will show you the difference.

I believe you are pretty nearly right in regard to bee-space; though $\frac{3}{16}$ is a little *too* small, a quarter-inch, a little scant, if any thing, is about right.

Bees do assuredly make way with eggs at times, but it remains to be proven whether they use them for food. This has been before advanced. Cheshire says the royal jelly is a secretion from glands in the head of the nurse-bees.

NOTES OF THE SEASON.

SOME VERY PRACTICAL SUGGESTIONS FROM H. R. BOARDMAN.

We have had another season of failure in the honey crop, but it has not been without its lessons of valuable instruction. This may compensate in a small degree, although it will not help us much in buying bread and butter this year. "What are we to do under such discouraging circumstances of continued failure?" I have been frequently asked. I can answer only for myself. I have already begun, with renewed energy and determination, the most careful preparations for the next season, determined to do my part more thoroughly and faithfully than it has been done, and I have yet confidence in this kind of work, even in a poor season. So long as the almost universal report shows that the bees were not in the condition they ought to have been at the beginning of the honey season, it is quite evident that some share of the responsibility for short crops rests with the bee-keeper, and is not chargeable wholly to poor seasons. Then the results of a colony here and there that had sufficient stores to keep up brood-rearing to the beginning of the honey harvest, are suggestive of the remedy. Yet I might as well admit, that, with all the energy and care we may throw into the business, the future of bee-keeping has no very flattering outlook in this part of the country. But even with all that seems discouraging, when I look about me and see the sharp competition for bread and butter in every department of life, it becomes evident to me that I *could* do no better at any thing else I might undertake, and perhaps I *should* not do as well.

BURR-COMBS.

The discussion at the Cleveland convention, upon thick top-bars as a means of preventing burr-combs in the bee-space above them, set me to thinking upon the subject, and especially the question asked by some one present—"Why do bees build burr-combs?" and I have set about trying to discover some reasonable answer to the question. I find, in looking over the back numbers of the bee-journal, that favorable reports accompanied close spacing, and that unfavorable reports accompanied wide spacing. I went into an examination of my hives and supers that had been used, of which I had an abundant supply, and, almost without exception, these showed the burr-combs on the tops of the frames to be only a continuation of the combs built from below up through the bee-space by shallow or rudimentary cells built on the sides of the top-bars, and thus contracting the bee-space between the top-bars to that of the combs below. The same thing occurs at the sides of the frames, and burr-combs are built in the same manner between the side-bars and the sides of the hive whenever the hive becomes crowded, as I had ample opportunity of observing on some old $\frac{3}{4}$-inch side-bars. The break-joint honey-board placed between the brood and surplus chambers intercepts these combs that are built upward from the edges of the top-bars, but does not prevent them—simply catches them in a bee-space provided for the purpose.

I said, if the frames were closely spaced it would at least prevent the bees from building up between the top-bars for lack of room, and deprive them of these starters from which to build these objectionable combs in the space above the frames. I accordingly arranged about 25 colonies, selected at random in four different apiaries, by spacing nine frames in a hive where I had used but 8. The hive is 12 inches inside. This would make the distance of the frames from center to center a little less than $1\frac{1}{8}$ inches. I do not undertake to show this to be just the right distance for spacing, but it approximates it, and answers the purpose of my experiment. In old colonies thus treated, the combs were trimmed down. In new swarms, natural combs were built only on starters. Most of the frames used were $\frac{7}{8}$ wide by $\frac{3}{8}$ thick; a few were an inch wide. I was agreeably surprised at the results of the experiment, as showing the advantages and benefits of close spacing of the frames. I will give the results as they appear to me from the experiment.

ADVANTAGES OF CLOSE SPACING.

1. It prevents, or very much reduces, the tendency to build burr-combs above the frames. In some colonies, tested where a close bee-space was preserved above the top-bars, as well as between them, *no burr-combs* were built at all; but where a wide space was allowed above the frames, more or less combs were built.

2. It secures the combs built of uniform thickness, smooth and even with the frames; consequently,

3. It makes them available for brood to their extreme edges.

4. It increases the capacity of the hive without enlarging it, in my case, one comb.

5. While the capacity of the hive is increased for brood, it is diminished for bees, and therefore crowds them out into the surplus apartment; and for the same reason,

6. It enables the bees to cover and protect more comb surface, and consequently to rear more brood and to build up faster.

7. Where natural comb is built it prevents the building of drone comb to a great extent. It will be seen that, in close spacing, the building of natural comb has some decided advantages, as the bees adjust or space their comb-centers throughout all their slightest undulations, in a more perect manner than it is possible to do it by any artificial means. The great importance of this is apparent.

One important test yet remains—that of

wintering—which I shall make and watch with care during the coming winter.

THICK TOP-BARS.

I am not satisfied that thick top-bars alone, without close spacing, will have much effect in preventing burr-combs, although the difficulty of building the combs up between thick top-bars is increased in proportion to their thickness. Therefore thick top-bars and close spacing may be more efficient in producing the desired result than those of medium thickness, say ⅜ inch. But before lumbering up all my hives with such bungling fixtures I should want to know beyond any question that some very decided advantage was to be gained by it. My frames are ⅜ full all around. I was quite certain that I gained some advantages in having them so heavy. I have been told many times that they were too heavy—too much waste wood in the hive; that the extra thickness made them clumsy and awkward. But it is some relief now to find out that these frames which I have used all of these years were *not* too thick, but they prove now to be much further out of the way by being too thin. The Irishman who said, "Of all the axthrames give me the middle one," quoted a very safe maxim. My advice would be, in introducing these extra-thick top-bars, "Go slow in making *all* such changes until the facts have been established by the most carefull experiments." These any one can make in a small way without wasting very much hard-earned money.

FIXED FRAMES.

In close spacing, uniformity and accuracy become very important. There is just room enough, and none to spare, for each comb; and the result of crowding one comb out of its place in the least would result in an infringement upon the one next toit, shortening the cells, and making it unfit for brood. We might, with much care, space the frames so they would approximate uniformity at the top. But please tip up your hive, and look at the bottom of the frames if you really care to detect the errors of spacing in hanging frames. I made a spacer this season for my inexperienced help, which did the work very well and quickly; but when I came to examine the combs at the bottom of the hive afterward, I almost became discouraged with hanging frames. Close spacing, I am sure, would necessitate the use of some style of fixed frames which have some good features to recommend them.

I have moved bees quite extensively for several years, to catch the local honey-flow. In doing this, the frames all have to be examined and secured. During this work this season I assure you that many times the convenience of fixed frames was forcibly suggested to me.

BEE-ESCAPES.

Who doubts their being practical? Certainly no one who has had much experience with the simplest form of wire-cone escape for getting bees out of the supers, and knows how to use them. I use them entirely for removing all of my surplus, and have used them for several years. I know better how to use them than I did a few years ago, therefore with me they have become more practical. I use the one illustrated and described by me in Gleanings about two years ago. I doubt whether any improvement of importance has been made upon it since. It is so simple that any one can make it, and no one would think of taking off surplus without, after learning its value. I use it now, substantially as described by Mr. Reese.

JAPANESE BUCKWHEAT.

A piece of ground sown with Japanese and the old black variety of buckwheat this season, side by side, shows the old variety to be much superior for bees, as it blooms fuller and remains longer in bloom.

MOVING BEES.

I read the very thrilling experience of friend Baldensperger, in moving bees on camels, with intense interest. It brings to the surface some vivid recollections of a similar kind. Although I never moved bees on camels, friend B. can count on my sympathies. I have some methods that are new and novel in this work, so far as I know. H. R. Boardman.

East Townsend, O., Sept. 20, 1890.

I have read your article with general interest. Perhaps bee-keepers have been depending too much on the season rather than on themselves.

You are so habitually careful in your observations and deductions, that your notes on the subjects touched upon are doubly valuable. You are drifting in the right direction; viz., fixed distances and dispensing with burr-combs. As to the latter, close and *exact* spacing, with an increase in thickness of the ordinary bars, are important. As to fixed distances, I believe that you and a good many others would use fixed distances *if* you could be convinced that they would not retard your present rate of frame manipulations. I may be over-sanguine, but I feel quite sure that *time*, and not a very long time either, will do it. Your first experience with them won't be favorable, but when you learn the "hang" of them you will be pleased.

About the bee-escape: I am also sanguine enough to believe that its real value is not sufficiently recognized. Mr. Manum uses it very much as you do, and he can take off a whole crop of honey from an apiary in three hours. E. R.

SPRING DWINDLING.

MRS. HARRISON SAYS IT IS NOT AS BAD IN THE CELLAR.

Womanlike, I want to put in a word in reference to bees, that are wintered in the cellar, dwindling more in the spring than those that remain out of doors. My experience is, that they do not dwindle as much. Where bees are wintered on the principle of the good old golden rule, "Do unto others as you would that they should do to you," whether men, horses, or bees, their vitality will not be injured by cellar wintering. When our bees were removed from the cellar it was thoroughly cleansed and whitewashed. The brick floor was scrubbed, and the dirty water was not allowed to soak away, but wiped up and carried out, and fresh water used. If there were any discharges from the bees on the surface not whitewashed, it was scrubbed off. Ever since, the fresh air has been circulating through the sub-earth ventilator and open window above. The cellar is built in dry sandy soil, and there is no dampness—if any thing, it is too dry.

When the bees are carried into this clean, healthy cellar, the ventilation is kept to suit conditions, and dead bees are not allowed to accumulate and decay, but are swept up and carried out. If the bees get noisy toward spring I infer that they are thirsty, and either wet cloths are put at their entrance, or snow-

balls, and they quiet down. We winter our bees as an Englishman takes his beer—"'alf and 'alf." One spring, the bees out of doors carried in large loads of pale yellow pollen the 2d and 3d of March; and it seemed too bad that the bees in the cellar could not have any of this fresh new bread. The spring proved to be a cold, inclement one, and bees could not fly for six weeks; and when the bees were removed from the cellar they were the strongest. We usually sell a few colonies every spring, and say to our customers, "Pick out your bees," and invariably they have chosen bees that wintered in the cellar.

BEET SUGAR, AND WHAT MR. THOS. WILLIAM COWAN SAYS OF IT.

Some one remarked, at the late convention, that white sugar is white sugar, whether made from sugar-cane, beets, or sorghum. It may be so, but I very much doubt it. Diamonds and charcoal are both carbon; but, are they the same? British bee-keepers have had experience with beet sugar; and if sugar is sugar, why does Mr. Cowan say that beet sugar will not do for winter feeding, but cane sugar must be used? I never knew of his having a sugar-cane plantation. MRS. L. HARRISON.

Peoria, Ill., Nov. 12.

My good friend Mrs. H., your reasoning is good in regard to cellar wintering, and I hope practice corroborates it; but with our open winters south of Lake Erie, as we are, I am not sure that horses and cattle would be in greater vigor kept in basement stables, than if they had the run of the open air during mild weather; and in our localities bees certainly seem to have more vigor when they have a flight at least every month in the year.—I feel a little sorry that this matter of beet sugar being inferior has come into print at all, for it is surely a great big blunder. Before answering you I tried to hunt up a copy of a government report, telling of the progress made by the beet-sugar industry, and stating that the sugar consumed in the United States was now over 60 per cent made from beets. If the sugar from the beet industry differed in any respect whatsoever from that made from cane (of course I refer to white sugar), our government surely would have mentioned it. Will Prof. Cook please corroborate what I say?

CONTROLLING INCREASE.

THREE METHODS.

Two years ago, when the honey-season proved such a failure, I had my bees at a distance from home; and, deciding to bring them back in the fall, for two reasons I aimed to keep down increase within certain limits; viz., to have the fewer to team, and the fewer to put into winter quarters, as the capacity of my prospective cellar, which was not yet excavated, was going to be very limited. I was then working with the Jones single-story hive principally; and as, in the locality there was just enough honey came in during the season to provide liberally for brood-rearing without occupying any room for storing, the queen had full sway of the hives, and the bees multiplied "prodigiously," as the Antiquary would have said.

I had strong compunctions against controlling the increase by pinching the heads of good queens; and so, when I had all the bees desired, I resorted to the plan of hiving swarms back into the old hive without a queen, having picked up the queen, which is always clipped, and placed her with two or three combs and adhering bees, in an empty hive, which was placed at an angle alongside the other, and finally doubled up with it a little later on, when the swarming season was over. This was done when I had made all the addition to stock wanted, and when the honey-season was so well advanced that I had ceased to look for any more surplus honey.

All I had taken or did finally take that season, amounted to 400 lbs. from some 60 hives, spring count. I considered this way of preventing increase only a make-shift plan, of course; but the way I have managed the matter this past season has, I believe, a good deal more to commend it. I am still a learner—a novice you might say — but that tough old schoolmaster, Experience, has been knocking some things gradually into my head; and among them is this: That, with a two-story hive, increase can be controlled to a much better advantage, and, I believe, the prospects for surplus honey improved. I don't like the idea of resorting to the old barbarous habit of sulphuring the surplus bees at the end of the season, as some suggest. To me it seems at least unscientific, if not cruel, and I think there is surely a better way.

This season I was changing my frame from 12½ inches deep, 10¾ wide, to 10¾ deep, 12½ wide, and the transferring was attended to right through the honey-flow, just as I could best crowd it in, and this reduced me to the following methods, which I found to work admirably:

1. As stocks got strong enough I added an empty super with, say, half a complement of frames of the new style, filled either with foundation or transferred comb, and the number of combs was added to gradually till the full quantity was made out. Two division-boards, of course, were used meantime. In only about one case in thirteen where I did this did I have a swarm, though the bees were remarkably strong. Our honey-season was a very poor one, however, and the queens, having so much scope for the exercise of their function, may on this account have been satisfied to stay at home.

The stocks in these hives were, at the end of the season, when breeding was over, shaken out of the lower story, which was removed, the bees being left to winter on the new-style frame of the upper story, which now takes the place of the original hive. The lower-story combs were then freed for extracting and transferring for next season. Part of the yard was attended to this way, and the other part as follows:

2. When a swarm would issue it was hived on the old stand on foundation, in the new-style hive, and the old hive placed on top.

When the brood had well hatched out, the queen-cells having been removed at the right time, the combs were extracted and transferred, then placed back on the swarm, in a super without a bottom-board, the quilt on the under hive being the only thing separating the two lots of bees. The upper-story entrance was left open for a few days.

The day after extracting and transferring frames, the separating quilt was pulled back an inch from the front, to let bees gradually mingle, and next day they might be removed altogether, and the upper entrance closed at nightfall with a strip. The bees would mingle

in the most harmonious way, and the upper story be made the receptacle for all surplus.

By this plan it was optional whether to leave the old queen in the lower story or do away with her and let her duties be taken up by a young one coming forward alone; but as I was satisfied with most of the queens already there, I carried on my rearing of such young queens as I wanted, elsewhere.

By following these methods I avoided undesirable increase, and assured good strong colonies for the fall flow, and for winter quarters, and had no call to resort to the inhuman practice of brimstoning. Next year I purpose to use a honey-board to confine the queen below.

Galt, Ont., Can., Nov. 7. R. W. McDonnell.

The first method of preventing increase—that of placing the swarm in a hive at an angle to the old one is essentially the one advocated by Mr. Heddon several years ago. It does not always work. The two other plans are modifications of Mr. Heddon's plan of transferring. It is pretty generally conceded, that, if the queen is given unlimited breeding room above and below, in extracting, the bees are not apt to swarm.

A PLEA FOR OUR BRETHREN OF THE MEDICAL PROFESSION.

BY N. A. HUNT, AUTHOR OF TOBACCO MANUAL, ETC.

Dear Friend Root:—I was rather sorry to see the article headed "Medical Facts," in Gleanings for Nov. 1. Its influence, I fear, must be bad on many. We all know, of course, that not a few who practice medicine, even some who graduated at our best medical schools, for various reasons are not fitted to practice medicine.

Up to the time of the late war, and for some years after it, great numbers, especially in the West, took up the practice without any special preparation. Some I knew, who, having failed in other business, got a pair of saddle-bags and started out, thinking to make themselves physicians by practice. Happily that state of things has well nigh come to an end. When I went to Southern Illinois, in 1844, having myself had a medical education, I naturally took much interest in the success of physicians, and observed their modes of treatment. My ministerial duties gave me a good opportunity to do so. On the south of me the only regularly educated physician lived at Golconda, 50 miles distant; on the north I could reach a regularly educated physician by going 30 miles. But physicians were plentiful, nevertheless.

I have, for more than 50 years, been familiarly acquainted with physicians—Allopathics, Tompsonians, Eclectics, Homeopathics, and I have also, in an especial manner, tried to acquaint myself with the cold, tepid, and hot water system. As in religion (as you know, Bro. Root), experience is worth more than theory; so with me. Experience and observation in medicine have vastly more weight than mere theories.

Now for experience and observation, as it has come under my eye, in medicine. When I was about a dozen years old, one afternoon I went chestnuting and ate too freely of the nuts. Early in the night I began to vomit and purge. The doctor was sent for, but it was daylight before he reached me—pulse scarcely discernible, and nearly all sensibility gone. By remedies in his possession he restored me.

I have eight children living. Nearly all of them, at some time in their lives, have been in critical conditions—something must be done, and done immediately. My youngest son, a few years ago, in spite of all my remedies and all the skill that I possessed, was fast sinking. I sent for another physician. He came, and took a course that I had not thought of—indeed, was ignorant of. It turned the scale, and my son recovered. During the last few months one of my daughters was thought to be lying at death's door. She was first taken with the grippe, then suffered a long run of typhoid fever, and, lastly, tumors formed internally. We had three physicians, of note, in the last extremity. Five surgical operations were performed on the tumors, and for two weeks nothing was taken by the mouth but ice-water; all nourishment and medicines were administered by enema. She is now well.

One fact I wish here to relate, not that it has any thing to do with the question I am discussing, but it should have weight in the discussion of the liquor and tobacco questions. After my daughter was fairly convalescent, we felt that the opiates, that had been used to a large extent, must be stopped. In the night I heard her in great distress, as it seemed. My wife got up, went to the sick-room, and stood by the bedside, where stood the trained nurse and one of my sons. She was crying and pleading bitterly for the morphine—an example of the drunkard, tobacco-user, and opium-eater. My son was resolute, and, in spite of the cries of his sister, whom he loved dearly, and the wishes of the nurse, he said, "No! it's time to stop the anodynes."

Some years ago a next-door neighbor was taken down with pneumonia, and wanted me to treat him. As I had carried him through a similar attack a year or two before, I consented. By the third or fourth day I saw that my remedies did not reach the case. I advised the family to send to the county-seat, where lived an eminent physician. He came, and, in kind, administered the same remedies that I had, but in much larger doses. The man recovered. It requires an accurate estimate of remaining vital forces to know when it is best to give double doses. I am sure I have witnessed wonderful success, in many instances, by increasing the dose double and treble the ordinary prescribed amount. But great skill is required in doing it.

About twenty years ago, on a visit to the East, I called to see a brother in Keene, N. H. When I got there he was unwell, and continued to get worse. On the third day after my arrival, and when I had calculated to start on, I felt that something more ought to be done than the young physician who was attending him was doing, and asked permission of the family to try to find an older physician in the city, and one of more experience. Such a one I found, and on the following day I felt it safe to pursue my journey. When I returned, two weeks later, my brother was up, and able to attend to business. For more than fifty years I have recognized not only the difference between the different schools of physicians, but the different treatment of physicians of the same school. Instances lie before me, in my mind, almost as thick as the manna did, six days out of seven, for the children of Israel to pick up as their daily food. The only question is, which to select from the common mass, to give a correct idea of what the practice of medicine should be, such as can be understood by the common reader. Leaving specific cases, we will turn to specific diseases.

Diseases change in form as they occur at different times, and under different circumstances. Scarlatina passes about, sometimes proving fatal in very many instances; at other times it is no more fatal than the measles ordinarily is

So with yellow fever, diphtheria, and, indeed, with most other epidemic diseases. The last time yellow fever appeared in the South, taking Jacksonville, Florida, as an example, only one in twelve cases proved fatal. It used to be said, when I was a boy, that in ordinary fevers, such as they then had in New England, that five out of six would recover, with good nursing, without medicine. I lived about 30 years where malarial fever prevailed in various forms, from fever and ague to continued bilious-typhoid. Our sheet-anchor remedies were some preparation of mercury and quinine. Four years ago I visited again the region of malaria, Illinois and Missouri, the southern part of both States, and, contrary to my expectation, I was taken down with malarial fever, identically the same that I had had so often 30 years before. The old remedies were used, blue-mass and quinine.

Before we quite dismiss the subject, whether physicians have a needed place in society, I want to call attention to surgery. Surgery belongs to the physician. None but a physician who understands anatomy, materia medica, and the vital forces of the human system, should use the "knife." In surgery, many valuable discoveries have been made during the present century. What middle-aged man ever heard of operating on ovarian tumor in his boyhood? A few years ago a physician started from Philadelphia, and in his trip to Minnesota and back he performed *ten* such operations. I happened to be acquainted with one of the ten. In all, I know three whose lives have been saved by removing such tumors. One of the three has been operated on three times for the same malady. I knew a girl thirty years ago who had had a large hole eaten through her cheek by the reckless use of calomel, as they said. The girl, as by instinct, kept her tongue in the hole (no doubt it felt better stopped than open). She was a sight to behold. A year or two ago I saw her again, and the cheek had no hole in it. She was a fine-looking lady. A surgeon had cut a piece of flesh from the arm, and caused it to grow into the cheek. Of course, the arm was fastened up to the cheek, and the flesh of the arm was not entirely dissevered till its adhesion to the cheek was secured. Who will undervalue such surgical skill?

Once, the patient in a surgical operation had to endure all the pain that the nervous system could inflict; now, we have found out how to suspend the feeling of the whole body, or a part of the body, for a time, and we can cut or manipulate at will, with little or no distressing pain to the patient while we are doing it. Is any thing gained to the human family by these late discoveries in medicine and surgery?

Then in regard to the compounding of medicines—how crude our medicines were sixty years ago, compared with what they are now! Now a physician can carry in his vest-pocket, in efficacy, what would have taken saddle-bags to carry when I was a boy. I know not where to stop exalting the medical profession, when in suitable hands, and the better part of man, the spiritual part, is enlisted in the work. Were I a young man, with the views I now have of the relation of God to man, and the correlative duties of man to God, I can't see how I could better follow the footsteps of my Redeemer than by doing what I could for my fellow-man in this life—when sick, restoring him to health; when mangled and bleeding, binding up his wounds, and, in so doing, I could more effectually minister to the spirit, to fit it for the *other* state of existence.

In concluding this article I wish to say that no small part of a physician's duty is to instruct the people while they are in health, or comparatively so. An *ounce* of preventives is often worth a pound of cure. Eat and drink moderately such things as ought to be eaten and drank. Such things as, in their nature, are not calculated to sustain and build up the system, let alone. Intoxicants and narcotics are of the latter class. If used as medicines, when the disease is subdued, stop the remedies. There is not an intelligent physician in the land, but will tell you that the use of liquor or tobacco tends to unnerve the system, and makes it less able to resist disease, and less capable of throwing off disease when it has once invaded the system. N. A. HUNT.

Mapleton, Minn., Nov. 12.

Friend H., GLEANINGS did not mean to reflect by any means on the regular practicing physician. You are right in saying, however, that it requires wisdom and judgment in deciding *what* physician to employ when there are a great many. It is sometimes said, that "doctors disagree." May be some of you have heard the expression before. Well, is it not true that doctors are coming more into harmony than they have been? I confess it gives one's faith a severe shock when he consults different physicians, and they all contradict each other. In our town it is getting to be quite customary for physicians as well as ministers to counsel together; and it seems to me as if it gave us a glimpse of the "good time coming." Why shouldn't all the physicians of a small town, say like our own, unite together in giving counsel when the life of a beloved citizen is in great danger? By all means, let us have faith in the neighbors round about us. Of course, that does not mean the traveling ones.

RAMBLE NO. 33.

LAKE GEORGE.

Who can alight on as happy a shore
All the world o'er, all the world o'er?
—TENNYSON.

The peculiar charms of Lake George are found in several points, among which are beautiful scenery, clear and pure waters, and bracing air. The weary toiler in some rut of life's drudgery, for a brief season dwells upon this happy shore, and soon forgets the ache and the pain, exchanging them for the elastic step and the joyous laugh that throws dull care to the winds.

Every one who participated in the bee-keepers' camp at Lake George in August will attest to the happy time there enjoyed. The Rambler tried to be the first on the ground, but Nig was not so fleet of foot as the little sail boat of Larrabee Bros., favored by a booming wind, and they distanced us by about an hour. We were, moreover, loaded with a variety of fishing-tackle that would puzzle the brains of Ike Walton himself. Brodie Higley, our 17-year-old companion, and the youngest bee-keeper of the camp, had borrowed all the fishing-tackle in two neighborhoods, and had every thing from a fiddle-string to a clothes-line, and was bound to clean out Lake George. Bros. Lockhart welcomed us, and we had a cordial hand-shake all around; and, pitching our tents, our camp began to assume quite a business air. We retired early, after the fatigues of the day; and

the waves lapping monotonously on the dock, a bull-frog melodiously blowing on his mouth-organ, and Brodie's nasal music, soon lulled the Rambler to a sweet repose.

The next day we perfected our camp, and appointed ourselves a reception committee of the whole, and received Mr. Barber, a bee-keeper who owns 40 colonies—save one. At evening we received our fisherman Brodie, who had industriously tried all of his fishing-tackle, and reported one minnow and three pickerel—save three pickerel.

The heavy clouds that had been skirmishing around all the afternoon finally got down to business, and the floods came. We all felt that something unusual was going to happen, and, sure enough, several Vermont ladies poured in upon us — Miss Douglass, Miss Wolcott, and Miss Andrews. After the excitement had subsided we all sought our respective lodgings.

The next day all nature was smiling. We donned our smiles also, and received Bro. E. R. Root, Mr. and Mrs. Knickerbocker, Messrs. John and Cyrus Andrews, and their natty little steamer; Miss Van Orden, Mrs. Fisher and son, Mr. Batchelor and friend. That evening was beguiled with song and story until the "wee sma' hours."

Quite a number of topics of national importance were discussed. Having an editor with us, editorial chirography was freely criticised. We were expressing our opinion of an Eastern editor's pen-tracks, when Brodie, who had been taking a private nap in the corner, shifted his position, and murmured, "Yes, it looks like pickerel tracks." We all smiled more or less audibly, and it was resolved that the Rambler go fishing on the morrow and teach his companion how to catch pickerel. It was also unanimously resolved that the type-writer is a blessing to bee-keepers.

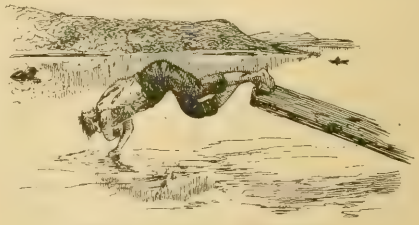
At this point Bro. Larrabee took the floor, and declared war on England for opposing the McKinley tariff bill. He said Vermont could easily wipe out England. He had invented a bee bomb-shell that would scatter consternation wherever it fell. He had read about two or three bees breaking up a camp-meeting. A few Vermont swarms would rout a whole army; or we could take Cuba, or any other land. We were so impressed with the magnitude of this

WE DINED ON PICKEREL.

theme that we again sought our couches. The Rambler had a fitful slumber. Bro. Root was so impressed he arose at 4 o'clock and went out on the mountain-side and sat on a rock. All the rest were very somnolent until a late hour. The breakfast-call, however, brought all hands around except Bro. Knickerbocker. As Bro. K. is always prompt in his queen business we had some little discussion over the matter. Some one suggested that we allow time for his name to get to him, and call him ten minutes earlier. Another wished to abbreviate and call him Knick—no, that will degenerate into Old Knick. Say, we'll call him George—that's it! and it solved the difficulty—George was always prompt.

Bro. Root bade us farewell that morning, and set face toward Vermont. After the farewells had been spoken we turned our attention to fishing for pickerel, and came in, after a successful cruise in Dunham's Bay, with 19, the Rambler, with the largest, and we thereafter dined on pickerel. The Hawkeye in the hands of W. Larrabee *caught us* as we landed.

On Friday our Vermont friends all departed. Farewells were spoken; regrets and locks of hair exchanged; and, as a last kind act, we waved our bandanas. Breaking camp is always a pathetic scene to us. Somebody is sure to forget something, and come tearing back after it. One lady forgot her b—bu—button-hook, and it became necessary to say good-by all over again. A second good-by, said by one party on the run, and out of breath, never has the *eclat* of the first one.



BRODIE GOES IN SWIMMING.

After the final departure, Brodie and the Rambler finished the day with a fishing-trip—caught three pickerel; got stranded in a storm on Jacob's Rock; and, to make the final episode as interesting as possible, Brodie suddenly left me and went down to visit McGinty. But he was remembered by the Hawkeye and the

Rambler.

THE GREAT LOCUST OF FLORIDA.

LOCUSTS IN GENERAL.

The immense grasshopper, or locust, sent by E. J. Baird, Orlando, Fla., is a giant locust. It is a female, and actually measures over two inches in length. The wings are shorter than the abdomen, while the antennæ are very plainly jointed, and taper to the end. Beneath, the pro-sternal spine is very large. The color of this Jumbo locust is yellow, orange-yellow, and black. The tegmina, as the upper wings of grasshoppers are called, are striped with red. The under wings, which in all grasshoppers are the important organs of flight, are marked with red and bordered with black. These wings fold up as we fold up our paper fans. They are powerful as organs of flight, and, in the migratory locusts of the Orient and our Western States, often bear the insects hundreds of miles. It is well known that locusts are great eaters, and often destroy nearly all vegetation. The locusts of which we read in Scripture were longer than this one, but not so robust. We have the Syrian locusts in our museum. They are interesting, not only as the insects that destroyed Pharaoh's crops and brought famine in the olden times, and in later years, but as the diet which in part supported John the Baptist. Our Katie is at present a Sabbath-

school teacher. She asked for these great insects a few Sundays ago, to show her class. She said they interested her pupils greatly.

It would be interesting to know whether this Florida locust is very destructive. If very numerous they must be, as it would take no little herbage to fill so corpulent an insect. Birds are great enemies to the locusts, and usually keep them from doing much harm. Other insects also feed on locusts; but occasionally they become so numerous even here that they are exceedingly destructive. Usually the oat crop is the greatest sufferer from these gormands. The locusts can be poisoned, but this is laborious; and we may well protect the birds, or, out west, set trees to attract the birds, and thus escape the raids of these terrible destroyers. The name of the insect is *Dictyophorus reticulatis*.

A STRANGE BEETLE.

Mr. H. W. Mitchell, Hawks Park, Fla., has sent me a strange beetle for which he wishes a name through GLEANINGS. The beetle is dark brown, very large, nearly 1½ inches long, and an inch broad. It might well be called the "rhinoceros" beetle, as it has three long curved horns on its thorax. These make it look very savage. The real name is *Strategus antarus*, Fab. It belongs to the same family as the common June beetle, which it resembles slightly, only this is broader in proportion to its length. It has similar habits. That is the larva which has six legs, lives in the ground, and feeds on roots. The beetle does little if any harm. It eats foliage a little, but not seriously.

Agricultural College, Mich. A. J. COOK.

Friend C., we are not only interested in locusts, but I for one am very glad to know that Katie is now a Sunday-school *teacher*. As the years go swiftly by, we forget that these little ones are constantly growing old; and it is a glorious thought, too, when we can think that they are growing old in the service of Christ Jesus.

ANOTHER OUTSIDE WINTERING CASE.

TRIED FOR FOUR YEARS, AND A SUCCESS.

I see in your foot-notes, in reply to Rambler, page 743, where he mentions Mr. Wm. B. Stephens as wintering his bees outdoors, packed in outside cases. Now, I have been practicing the same plan for the last four winters, with all the success that could be desired. I now have 70 colonies packed on their summer stands, and I do not anticipate the loss of one per cent during the winter. My cases are made to admit a packing 4 inches thick on the bottom and on each side, while on the top it is 6 inches. I make them in two sections for convenience in packing and unpacking, and the bottom is made a trifle smaller than the inside of the case which rests over it its thickness, and rests on the corner-posts, which are 1½x1½ inches. My hives are made with an entrance the whole length of the end-board; and in order to make the same free from the outside of the case to the inside of the hive I take a board 4 in. wide, and as long as the hive is wide (outside measure), and nail a piece 1 in. wide by ⅜ in. thick, just far enough from each end and across the board, so that, by letting the ends project a little, they will slide into the entrance close up to the side boards, and hold it fast. These cross-sticks must be long enough to receive the alighting-board, which is to be nailed on the other side of the cross-sticks from the other board, so that the edge of the first board furthest from the hive will be just opposite the edge of the alighting-board next to the hive. I nail my case-bottoms to pieces of scantlings, and my hive-bottoms to pieces of 2x4, which, when placed on the bottom of the case, leaves a space for packing, as above stated. Now cut a piece from the center of the front end of the bottom case, as long as your hive is wide, and as deep as the distance from the top of the cross-pieces to the entrance-board to the lower side of the case bottom, and set on the lower section, and pack it. Then put on the other section, and pack that, and you will, in my opinion, have the best security for bees that can be devised.

Lanesboro, Pa., Oct. 27, 1890. P. L. NORTON.

The reason for proposing an outside wintering shell or case was to get something cheaper than a double-walled hive; but I fear, from the description of yours, it would cost as much or more than a double-walled chaff hive. We want something that will not cost over 35 cents at wholesale, and all in one piece. have no doubt but that your case would winter the bees successfully. E. R.

ERNEST'S NOTES OF TRAVEL IN VERMONT.

AT J. E. CRANE'S, MIDDLEBURY, VT.

I took the steamer up the lake to Ticonderoga, a town of 4000 inhabitants, at the head of the lake. A short distance out is the celebrated old fort bearing that name. As I retired that night at the hotel I promised myself the pleasure of seeing *at least* the site and a part of the wall of that old historical spot. Next morning I took the train, and was told that the fort was on the right-hand side in plain sight. I thought that I should surely be able to pick it out when I got to it; but, lo and behold! the first thing I knew I was three or four miles beyond it, and had not seen it.

My next point was Middlebury, Vt., the home of a prominent and extensive bee-keeper, Mr. J. E. Crane. As I neared the place I began to notice the big hills that I had left back in York State, and over in the distance the Green Mountains. I alighted at the depot, and inquired my way to Mr. Crane's. When I had arrived almost there, a handsome residence was pointed out to me, with ample lawn and commodious barn and shop. I inquired at the house, but found Mr. Crane was out in the back yard, in his garden. Like some other bee-keepers, small fruits are one of his hobbies. He began to talk about the different varieties, assuming that I understood all about them; but I had to confess, that, despite all the opportunities I had had, I knew little or nothing about such things. He seemed a little surprised, but I told him that I did not *dare* to get much interested in any thing outside of bees; for if I did, I might lose interest in my real pursuit.

In the front part of the garden were a few hives. Most of his bees—500 or 600 colonies—were in out-apiaries. The hives were of the Manum type, although he was using the L. frame. He did not see but that he wintered his bees just as well as his friend and neighbor with a frame more nearly square. We repaired to the barn, wherein was his bee-shop and honey-storage room.

Our friend Mr. Crane has been rather more fortunate than most of his neighbors whom I visited. He obtained, I think, 11,000 lbs. of honey. The season had been a little better than with his friend Mr. Manum, only eight or nine miles distant.

Among the things in the shop that interested me particularly were the clamps, or honey-crates, for holding sections. There were also samples of the original thumb-screws that had been used for clamping up the sections some ten or twelve years ago. It seemed that Mr. Crane wanted some sort of arrangement to clamp up his sections; and I believe he suggested something in the nature of a screw. Mr. Manum, his appliance-maker and bee-keeping friend, soldered a brass thumb-plate to a common screw, and these they both used. But they, subsequently, used wooden screws, the same that Mr. Heddon has since adopted. But Mr. Crane has discarded them for a wedge. He thought it was more convenient, and did away with the unpleasant projections in the form of thumb-screws outside of the case.

HIVES WITH THE ENTRANCE THROUGH THE BOTTOM.

Among other things that interested me greatly was an old bottom-board. It had a square hole in the center, and an alighting-board under it. The bees, to enter the hive, pass under the bottom-board up through the aforesaid hole into the hive. Mr. Crane believed he was original in the use of such a bottom-entrance hive, he having devised this a great many years ago. There were many nice things about it; but, taking it all in all, he had discarded it for the ordinary entrance in front of the hive.

Perhaps I might remark, in passing, that Mr. Elwood, Mr. Manum, and Mr. Hetherington, use bottom entrances—that is, the bees pass directly *under* the hives. Mr. Elwood, when the bees are to be moved, closes the hole with a slide and the bees are shut in. For outdoor hives that are to be left on their summer stands

CRANE'S HONEY, READY FOR MARKET.

in double-walled hives, this sort of entrance is certainly a nice thing. It is quite impossible for the snow to bank up in any way so as to close it. For a single-walled cellar hive, the bees have only to be carried into the cellar, the slide withdrawn, and the bees have ample bottom ventilation. If I am correct, this is the way that Elwood, Hetherington, and L. C. Root give bottom ventilation in their cellars.

Another thing that interested me particularly was Mr. Crane's method of packing honey for market. He had a few thousand pounds already prepared for market. I photographed a pile of it standing in the barn, which I herewith present to you.

He puts all his honey in cartons, also neatly lettered. A certain number of cartons filled with honey just fill a case. They are not glassed, but the sides are left open, and the cartons are ample protection for the honey. The cases are made of beautiful white poplar, and are lettered by stencil in black and red, with a handsome monogram, and an old - fashioned straw bee-hive tastily arranged in the lettering. It is all carefully graded, and named according to the grade. The pile I photographed above was about the handsomest lot of honey for market I ever saw. I am sorry the print doesn't give it more justice. While I was admiring his honey, a little girl came out to the barn to see her papa. He seemed to be very proud of her, and well he might. When this little one came into his family he named her Theodora, from two Greek words, meaning "gift of God." I thought, "How nice it would be to have her sitting by two or three of those pretty crates of honey, out in the bright sunlight!" We arranged some crates, and by this time the boy came out. We stationed the two by the side of the cases, and with the Kodak I took two or three shots; but as it was near the end of the film it was not a good picture or else I should have been glad to introduce all our readers to little Theodora and her brother Philip, the latter named after Mr. Elwood.

We now went into the house, and I met Mrs. Crane. Into the parlor we repaired, and Mr. Crane said he would like to show me something he was interested in. He produced a box containing a large collection of stereoscopic slides, illustrating different phases of the temperance question, showing the effect of taxation, license, and prohibition. During his spare winter months he devotes his time to the cause of temperance, and lecturing on the subject. Perhaps some of our readers may know of him through the columns of other papers.

After dinner, Mr. Crane kindly offered to take me across the country to Mr. Manum's, who lives eight or nine miles away. We ascended some pretty big hills, and had some fine views of the surrounding country, and the fact seemed to impress me more than ever that a good bee-forage is generally found in mountainous or hilly countries. After a very pleasant drive and visit we reined up before Mr. Manum's house. You know the rest as given by Mr. Manum, recently. He was in his bee-shop, and, of course, the first thing I did was to get inside of it and look at all the fixings. "What is this? and what is that for? Oh! this is what you described in GLEANINGS. Ah! I see," and so on.

MANUM'S BEE-CANDY, ETC.

Mr. Manum has already told you that my stay was short, and so, of course, I put in the time about as fast as I could, asking questions after the manner of the above. There was his swarming-arrangement that he had described in GLEANINGS. He has a little frame for hatching queen-cells, the same as was described and illustrated on page 629 last year. He showed me a pan of his bee-candy. Why, *it would keep four years*, and still be soft, and good food for bees. I may remark in passing, that we are now experimenting with it, with the view of adopting it next year for mailing queens in the Benton cage. The trouble with the Good candy is, it is apt to get hard when it goes into a cold climate. We have had some lately that became as hard as a brick, and the bees actually starved to death, as was shown by inspection of the cages returned. Mr. Manum adds a very small quantity of *glycerine* to the sugar and honey to prevent this. To save you the trouble of referring to back numbers, I will give the formula:

Eight spoonfuls of coffee A sugar; one of wheat flour; one of glycerine; two of granulated honey. First mix the flour with the sugar, then add the glycerine and honey. Let it simmer on the stove until the sugar is dissolved, and then remove to cool.

MANUM'S CLAMP; THE ADVANTAGES OF COMPRESSION.

Of course, I was interested in his clamp, as he calls it; and surely it *is* a clamp. It is simply a small case for holding 16 sections, and the same are pressed together with thumb-screws and a follower. Messrs. Crane and Manum both use a similar arrangement; and I am satisfied, from what I saw at their places, that it is certainly an advantage in compressing the sections. In the apiaries I visited I noted *particularly*, that, where *compression* was used on the sections, there was a most *decided lessening of the propolis accumulations* on the sides of the sections coming in contact. The time saved in scraping afterward will more than save the expense of compression. We regard the wedge and follower so important that we have put it in all the supers for the Dovetailed hive.

Not the least advantage of the follower and wedge, or the thumb-screw, as the case may be, is the facility in removing sections; by simply loosening the thumb-screw or wedge, the sections are ready to be slipped out of the case.

MANUM'S LEATHER-COLORED ITALIANS.

That evening, while Mr. Manum was doing his chores, I strolled out among his bees, and raised the covers over his hives, and, although the air was a little chilly—enough so to make the bees a little irritable—I pulled up the covers and looked down upon the bees—yes, those leather-colored chaps that know how to gather honey. They were as gentle as kittens. I would not have blamed them at all for showing a little fight for coming upon them at such an inauspicious time. In fact, their general appearance is much like that of bees from imported queens, and their temper was strikingly the same. I do not say this to puff up our imported stock, but simply that Mr. Manum, through a careful selection of years, has raised a lot of bees possessing strikingly the characteristics of those reared in mother Italy. One thing that struck me as I was looking over those bees from those hasty glances, was the fewness of burr-combs. This matter has been already touched upon in this journal by Mr. Manum and myself elsewhere; see page 839.

MANUM'S CHAFF HIVE.

Although Mr. Manum had carefully described his hive, with appropriate illustrations in GLEANINGS, some time ago, I never understood before that he uses virtually an outside protecting shell over and around the ordinary brood-nest—single wall. His "brood-box," as he calls it, is made of ⅞ stuff, and sits right down on the large bottom-board for the outside protecting-shell. To enter this hive, the bees pass under the bottom-board through a hole. The outside shell is simply a large case having a hinged cover, leaving some three or four inches space around the brood-box, or, as we might call it, an ordinary single-walled hive. Common planer shavings are poured in around the brood-box until they are level with its height. When the bees are packed for winter, an ordinary cushion sits down over the whole.

In very many respects I like Mr. Manum's hive. If he should so prefer, he can remove his bees in the ordinary single-walled hives, and afterward bring along the outside shells. In other words, he is not obliged to lug along a great big hive in order to carry an ordinary-sized colony. He simply lifts out its inside, and then he can lay the narrow outside cases in a large wagon having a hay-rack, or any thing suitable for carrying something so bulky.

It was getting dark, so I could not pursue my investigations further, hoping to reserve the rest for the morrow. That evening Mr. Manum and I had one of those unconventional bee-conventions all by ourselves. His son Fred, who has charge of one of his apiaries, was present part of the time. When I asked where he was, his father smilingly said, "When I have visitors, and we begin talking about bees, he is up and off."

I have no doubt that Fred is as I used to be. Before I forget it, I might say that he is a young man 21 or 22. He is quite an expert apiarist, and is one of those fellows who like to have every thing neat and tidy, but he does not like to talk bees everlastingly. His father seems to have lost none of his old enthusiasm; and as each new subject was brought up, his face would light up with pleasure, for he always has something practical to relate. We did not sit up and talk *all* night—no; we went to bed at a late hour, and the next morning we were ready for business. But, oh dear! it was raining, raining, raining, and it looked as if it would continue all day, and it did. We employed the time profitably, I think, by talking; but, how I *did* want to go out into that apiary again! Finally, along in the afternoon, with umbrellas and gossamers, we went out into the yard in spite of the rain, and then I had a chance to see those leather-colored bees a little more plainly. I asked Mr. Manum what he thought of the golden Italians. They are too short-lived and delicate for the business—at least for him. He did not object to their being yellow, but, as a general thing, the bees that do the best work are after the darker order.

As was explained by Mr. Manum, he had designed to take me among the bee-keepers of that section, but it rained so furiously that that was out of the question, and I bade my friend good-by, expressing the wish that I might come again and make my visit a little longer.

I found Mr. Manum to be all that I expected, from his writings. He is progressive, ingenious, systematic, and thoroughly practical. I said "systematic." He is extremely so; and this may account in no small degree for his success. From what I saw of him I should judge he has a very pleasant faculty of getting along with his boys, and making them do just what he wants them to do, with few or no rebukes. In fact, there is nothing I should like better than to work a season with him myself.

As I am about to close I regret that more bee-keepers can not have the time and money to visit each other more than they do; and I hope, therefore, that I can make these notes more of a permanent feature than I have done heretofore. If there is any thing that our readers wish to know, that I have not sufficiently touched upon, please write, and I will either give further particulars or ask the bee-keepers directly concerned to answer it. This finishes my notes of travel on my eastern tour. Next time I hope to tell you something about the Dadants and Dr. Miller.

KEEPING RECORD OF HIVES.

HOW FRIEND MUTH-RASMUSSEN DOES IT.

Friend Root:—During this honey season I have kept track of the work in the apiary by using your slate tablets in connection with small stones in different positions on the hive-covers. On the side of the slate, turning toward the hive, I note any thing that has to be pre-

served for the permanent record of the season; as, when super was put on, when emptied, etc., which gives me at the end of the season a complete record of the doings of each colony, to be entered, if desired, in the record-book, which will enable me next year to decide which queens to breed from, which colonies must be requeened, etc. On the side of the slate facing outward I simply write in large figures the date when last I opened the hive; and the stone or stones on the cover tell me of the last work done, or the progress or condition of the colony when last examined.

This system would be perfectly satisfactory if only the constant change of date in writing could be avoided. The permanent record must, of course, be written, and for this reason I would continue the use of slates, though in a more limited degree. But the ordinary work with or examination of hive or super can be recorded by the position of the stones, of which each bee-keeper can form a code of his own, while the date could be changed without the necessity of writing, by using a *date-card.* I have thought of using your queen-registering cards for this purpose; but the trouble is, that the date figures are so small that one has to stoop low to read them. I would have the figures so large and plain that the bee-keeper can read them without difficulty, as he walks along in the rear of the hives; larger, if possible, than those on the sample card. As the seasons vary in different parts of the world, the abbreviated names of *all* twelve months should be printed in the other circle. The date-card should be about the size of an ordinary postal card, and should contain only the two circles for the months and dates, and a place for the number of the hive—nothing else. I presume that pins can be obtained, long enough for the larger circle. Black pins would be best; hairpins cut in two might answer the purpose.

Where one has a large number of colonies to go over in a day it is quite an item to be able to avoid much writing, particularly when the hands are soiled with honey or propolis.

I think these cards will prove a boon to the bee-keeping fraternity, if you will get them up and keep them in stock, at, say, a cent each, 75 cents per hundred, $5.00 per 1000, or whatever you can make them for. I myself would use 150 or 200 each season. If you think favorably of it, please get them ready for next season's use.

In regard to the position of the stones, I will give my present system as used, while the supers are on the hives, viz.:

7	6	5
8	9	4
1	2	3

Rear.

1, emptied first time.
2, emptied second time.
3, emptied third time.
1 (2 stones), emptied fourth time, etc.
4, doing nothing.
5, sections not yet capped.
6, ready to come off in about a week.
7, ready to come off in a few days.
8, super put on (see date).
9, look at the slate.

This may be varied to suit each individual, and the same marks may have other meanings when no super is on the hive. To me the system has been of great benefit, as I could read at a distance the record of each hive, and it would have been perfectly satisfactory, if I could have had the use of the date-cards.

I have used the stones for several years, and am aware that others are using them also; but the date-cards are a new idea of my own, and I hope ere long to see them in general use.

Wm. Muth-Rassmussen.

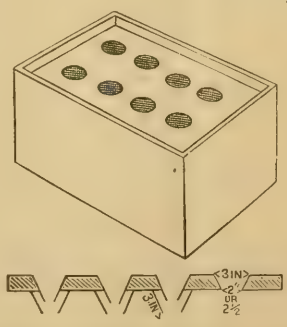
Independence, Cal., Aug. 4.

Friend M., I am glad to see you developing our old queen-cards that I was so enthusiastic over when they first came out. Since you suggest it, we can easily print these cards the size of a postal card, and we can also print the numbers on from 1 up. Black pins can be had at the millinery stores. Just ask for mourning-pins, and you will get exactly what you want. Now, before we set up the type to print these, we should like to know how many want them at the price you mention. We can make the numbers large, plain, and black; put them in packets of 100 and print them on waterproof paper or cardboard, at the price given, providing 100 or more will take a pack of cards.—Your idea in regard to the stones is very suggestive. It reminds one of that queer science called "mnemonics."

THE BEE-ESCAPE PREFERRED BY H. L. JEFFREY.

THE OLD PERPENDICULAR CONE THE BEST.

I send you a draft of a bee-escape we like best. The sides and ends are 5 inches deep. The ends are ⅞ thick, and are rabbeted out ⅞ deep. The sides are ½ inch thick. The escape-board is also ½ inch thick, 13 inches wide, 19 long. It is to be let down into the end rabbets, leaving it ⅜ below the top edge when in place. Make 8 holes in it 2 inches in diameter, and bend the upper edge to 3 inches. Make the cones so that thay will be about 2½ inches deep when formed with a scant half-inch at the apex. Fasten these from the upper side, then make another set of cones, that will be 3 inches deep, from a square of wire cloth, and have it about an inch larger in diameter than the inner cone, and make the egress ½ inch in diameter. Nail this on the under side by turning up the corners. If thus made there will be a full inch space below the cones above the top of the frames, and plenty of room for nearly a swarm of bees on the under side of the escape-board. The wire cloth can be cut 5 inches square for the cones. By using the deep rims and 3-inch cones, two or three crates can be placed upon the escape at one time; but if only one crate is



THE FORM OF ESCAPE USED BY JEFFREY.

taken from the hive at one time, an escape with a 3½-inch rim and 1½-inch cones will do. But give me the deep one every time. I have used two sorts, one with the board flush with the top of the rim for crates, with bee-space under side; and for the crates with boxes flush with the bottom, the escape has the top bee-

space. I am indebted to Mr. Reese for this escape. H. L. JEFFREY.

New Milford, Ct., Nov., 1890.

Our engravers have made the super too deep. If half the depth, its proportion would be about right. There is no question but that this escape will work. In our special number, some time ago, on bee-escapes, it was shown that a space *below* the escape, of *two or three inches*, was a decided advantage. There has never been any question as to whether the original Reese would work; but because it stuck up in the way, the "horizontal" was devised by Mr. Dibbern. His pear-shaped model has worked very nicely with us, and is much less liable to be damaged than the perpendicular Reese. The latter form is cheaper to construct.

STRAY STRAWS.

EDITED BY DR. C. C. MILLER.

Charming fall weather.

It seemed lonesome without the Michiganders, Prof. Cook and editor Hutchinson, at Keokuk.

Henry Alley believes in closed-end frames, and will hereafter use 7-frame hives.

Alley wants to spot the fellow who invented *pulverized* sugar and honey for shipping-cages.

A prominent manufacturing concern takes control of one of the bee-journals Jan. 1. "Which one?" I won't tell.

The name "International American Bee-association" has been changed back to "North American Bee-keepers' Society." Good! It's to be incorporated.

Is it because Doolittle raises capital queens that he always says "Queens" in his book, or did his publisher run out of lower-case q's?

I took 27 colonies into the cellar Oct. 28. The last of my bees were not taken in till Nov. 8. Four are left out for experiment.

Elwood, the new president of the N. A., is a man of weight—some 200 pounds of it. And that's not the only kind of weight he has.

Hutchinson thinks an editor and publisher should keep out of the supply-business—if he can. Can he? The *Review* isn't very old yet. It's a good paper, though.

Delegates of affiliated societies sat on the platform at Keokuk. If ever the society becomes truly representative, it will have to meet in a hall whose floor is *all* platform.

My bees don't hang in such large clusters under the bottom-bars as they did last winter. They seem as heavy with honey and as strong in bees, but perhaps they are not.

The Ontario Bee-keepers' Association not only sends a delegate to the N. A. convention, but pays his expenses. Canadians can't brag with us, but sometimes they beat us in having something worth bragging about.

President Taylor and Vice-president Secor are alike in one respect, both having faces so barricaded with beard that they look as solemn as undertakers. But there's lots of fun back of the barricade.

Does the roaring of a particular colony in the cellar mean any thing wrong? Doesn't every colony have a periodic rousing-up, to turn over in bed, take a lunch, or something of that sort?

Samuel Cushman, superintendent of Rhode Island Experiment Station, after several years' trial, recommends Simmons' dry-sugar feeding in spring—C sugar, put in a feeder where the heat and moisture of the hive are confined.

In his paper at Keokuk, Rev. W. F. Clarke says I called him "long-winded," and makes the secretary his authority for it. I don't know that I ever *said* so. Is one of them a mind-reader?

The old vice-president and secretary of the N. A. were re-elected, but E. R. Root beat me for treasurer. That's always the way. Whenever I get at any thing that has money in it, I always lose my job.

What's the reason that that $5000 has been kept so still? I mean that $5000 to which Prof. Cook referred in his essay at the North American convention. Ought not the bee-journals to tell us all about it?

Isn't there a fading-out of the strong advocacy for upward ventilation? A good many of the former upward ventilationists, myself among the number, now want every thing glued up tight on top, in winter. It's lots handier. But larger bottom ventilation has come.

Is it true, as a general rule, that, the nearer you get to a lot of bee-keepers, the brighter they seem? I had no idea there were so many bright bee-keepers within hail of Keokuk. I was disappointed in not seeing Dibbern and some others there.

Three-sixteenths of an inch is what the *Api.* calls a bee-space. That's the least space I believe in which a bee can stand up straight; and if any one attempts to make it less, so the bees will have to get down on their hands and knees, there'll be trouble.

UNITING.

Considerable testimony is given in the *British Bee Journal*, to show that bees may be readily united by simply dredging the bees of both colonies with flour, whether they be on or off the combs. Some say they have practiced it for years. It's easily tried.

The *C. B. J.* reports two cases in which a cluster of bees without combs or stores has hung a good many days in the fall "without visible means of support," but bright and lively. It raises the question as to whether it may not be a good plan to keep bees in this condition "between the close of the surplus-honey harvest and the putting of the bees into winter quarters."

H. Alley and E. L. Pratt agree that colonies heavy with stores at the close of the honey season consume these stores, and are no better off in the fall than those that were light. Alley says, "We have come to the conclusion, that, at the end of the honey-flow another season, we shall remove nearly all the honey from the brood-combs, and thus compel the bees to make their own living from day to day. . . . . It strikes me that this plan for retarding brood-rearing and also in economizing the consumption of stores, will be successful. If necessary to feed back in the fall, the honey will be on hand for the purpose." This is closely in line with D. A. Jones' swarm hanging with no combs. It may lead to something.

Can't GLEANINGS put the name of each writer at the *beginning* instead of the *end* of his contribution? It isn't pleasant to wait till a man is through talking before you see who he is. Also, it would be a comfort if "A. I." or "E. R." were signed to all the editorial comments. It's a bit confusing sometimes as it is.

The *Apiculturist* commends A. I. Root for paying $50.00 to Benton for the benefit of his experiments in shipping-cages. I wonder whether Bro. Root's opposition to patents doesn't arise from a desire to crush out the government and monopolize the business. In several cases I think he has paid more for in-

ventions than a government patent would have brought.

THE THICK-TOP-BAR BOOM.

This gets an encouraging pat on the back from the *Apiculturist*: and *C. B. J.* Heddon doesn't say any thing about it lately—lying low till he sees the collapse of the whole thing, when he may repeat his Chicago statement: "When you throw up a brick, and it stays up without ever coming down, then you may expect to dispense with slatted honey-boards."

THE INTERNATIONAL BEE-ASSOCIATION.

NOTES BY ERNEST. CONTINUED FROM PAGE 809.

W. Z. Hutchinson, on account of ill health, was not able to be present; but Dr. Miller read, in clear and distinct tones, his paper, entitled

APICULTURAL JOURNALISM.

Mr. Hutchinson touched upon the growing tendency of the times toward *specialism*. With the need of specialty in production, came the need of specialty in periodicals; and why not in bee-journals? He did not believe it paid to "mix in" other specialties. He would give attention to quality, and would keep out the trifling experiences of beginners. The author's name he would have at the head of the article, so as not to be obliged to turn over the leaf to see who the writer is. He opposed the idea that *all* should write briefly so that all may be heard from. A long article he would welcome just as much as a short one, provided the former contained valuable matter in proportion to its length. Advertising matter in bee-papers he thought should pertain to bees. He would not have his advertisements from bee-men overshadowed by buggies, patent medicines, trusses, etc. He would have the journal stopped at the time paid for.

At the conclusion of the paper quite a discussion arose. Dr. Miller wanted the buggies and other *useful* things, because it helped to make a better paper. Mr. Newman argued that the advertisements of useful articles, whether pertaining to bees or not, were the life of a periodical. A bee-paper could not be supported without them. The opinion seemed to be abstracted from the paper, that Bro. Hutchinson would cast *all* bee-journals from the same mold. It was insisted that each journal should retain its individuality, and that, for any one of them to follow exactly the policy Bro. Hutchinson outlined, would be detrimental to their best success.

Dr. Mason read an essay on the apiarian exhibit at the Columbian World's Fair in 1893. He gave some correspondence between himself and the Exposition Management. He would have all the exhibits from the whole world grouped together; then the exhibit from each nation and State by itself, with a superintendent to assign location and space, with a general oversight over all. It would add much interest to the display to have the name of every article placed upon it, so that an unsuspecting public would not call beeswax maple sugar, extracted honey maple syrup, extractors churns, etc. If possible, there should be an apiary on the grounds, and with a large display of growing and blossoming honey-plants. He recommended that the bee-keepers of the several States should apply for an appropriation. After reading the paper, a committee was appointed, composed of Dr. Mason, R. McKnight, and T. G. Newman, to confer with the authorities of the World's Fair in regard to space, etc., for the necessary exhibits of honey and apicultural ppliances.

R. McKnight gave us some good suggestions at this point. He had had long experience in this line. A great deal of money is needed for exhibits, and this ought to be furnished by the different States and provinces. He thought the bee-keepers of each State should ask for appropriations from their legislatures.

Dr. Mason said that, at the International Exposition at New Orleans, the State of Ohio gave $500 to a bee-keeper to take charge of the State exhibit, and he proposed to ask the State of Ohio to give $1500 for Ohio's bee-exhibit at the Columbian Fair.

Dr. Mason was recommended by the society as a suitable superintendent of the exhibit for the United States. Certainly there can be no one better qualified for that place, within our own borders, than he. He is interested as no one else is, in apicultural exhibits, and he is *the* man to have charge of the matter.

THE INTERNATIONAL BEE-ASSOCIATION—ITS PAST AND FUTURE.

This was the subject of a very interesting paper by W. F. Clarke. He referred to Mr. T. G. Newman as being the historian of this society, and the splendid work he had done for it. Prof. Cook was the father of it, and he thought we owed as many thanks to him as to its historian, for he was not ony the author of its being, but he had helped to make its history. One of its first works was to elevate father Langstroth to the pedestal of honorable distinction. At the outset of the organization an attempt was made to start a rival association; but by judicious management the two were amalgamated, and father Langstroth was made president of the combination. The presidency next fell to the late Moses Quinby. Of him he said, "If there ever was a just man on earth, Moses Quinby was one. His services to bee-keepers are second only to those of Rev. L. L. Langstroth." He would emphasize the influence the association had in keeping reputable bee-keepers at the front. He would urge that the association be more representative in character. The only defect in it was, that there were too few "wise men of the East" present; and but for the kindness of the Ontario Bee-keepers' Association he himself would not have been present. They had sent him as a delegate, and paid his expenses, and they proposed to continue to do so. He held it up as an example for State associations.

At the close of the paper Mr. Newman emphasized Mr. Clarke's point, that the association should be *representative*, and that State and Territorial associations should send delegates, and *pay their expenses*. Bee-men generally can not afford the outlay for themselves. This matter was touched upon elsewhere in our last issue, and I hope our associations will take the matter seriously into consideration. Let there be a delegate from each State to our national associations, and, by all means, pay his expenses. It seems to me that a State society that can not do it is not in a very flourishing condition financially. I believe some one in the meeting suggested (perhaps it was Mr. Newman) that, if the money could not be procured through the society, the individual members themselves chip in and send their delegate.

AMENDMENTS TO THE CONSTITUTION.

In some of our earlier sessions there was considerable discussion in regard to the constitution, and its need of revising on some points. Mr. Newman, upon consultation with a few of the officers, introduced several amendments, one of the most important being the change of the name of the association. It had been, heretofore, International American Bee-association; but it was objected, that "International" was too big. Heretofore the territory of Canada

and the United States only has been included. It was objected, also, that we are not an association of bees; therefore the old name, North American Bee-keepers' Association, was recommended and adopted.

FOUL BROOD.

Foul brood was the subject opened by a voluntary contribution by Allen Pringle, president of the Ontario Bee-keepers' Association. He detailed what Ontario bee-keepers had already done in securing the passage of a foul-brood act, and of an inspector, under the pay of the government, the details of which we have already given in our columns. He gave the method of cure which we recommend in the A B C book, and have from time to time given in these pages.

After the paper the convention discussed, pro and con, its cause. Some argued that it might start from chilled or decayed brood; but I think it was proven that the disease can not start from this source. It might be a favorable medium; but unless the germs were there in the first place, it could not propagate. Some thought it was *not* necessary to scald the hives; but your humble servant told them that he left 40 hives without scalding, and every one of the number, in six months, imparted the disease. There is no practical method of disinfecting, except by boiling every thing having been in contact with the disease, except, of course, the bees. They, if they consume the diseased honey in their sacs, will not again transmit the trouble.

FULL SHEETS OF COMB FOUNDATION VS. STARTERS IN THE BROOD-CHAMBER AND SURPLUS RECEPTACLES.

This was the subject of Eugene Secor's essay. He started out by saying that one swallow does not make a summer, and one experiment does not establish a theory, always. He did not pretend to know a great deal about the subject, but for several years he has used full sheets of foundation in the brood-chamber. The advantage was, that he had secured all worker combs; and the disadvantage was, that it increased the cost of every colony. Then he decided to let the bees build their own combs. Last summer he met a setback which he had not experienced before. The nectar was so scarce that the bees built scarcely any comb up to the opening of basswood. That came in such sudden abundance that some of his best colonies built almost entirely drone comb below. If he had foreseen this, and had provided them with full sheets of foundation, he was not sure but that the bees would have gnawed it full of holes, and filled it full of drone comb. With the present high price of foundation, and the price of bees, he was somewhat doubtful about the advisability of using more than a starter in the brood-chamber. With comb honey in sections he would use full sheets of the very thinnest and best foundation. In extracting supers he liked full sheets.

A lively discussion followed the reading of this paper. Dr. Miller was asked about wiring foundation, and he replied by saying, "I don't know." When we wire foundation, he said, we have it in the middle, and can handle frames more easily. When a vote was taken, it was shown that 28 used foundation, and 25 did not. They kept on arguing until it was suggested that we were off from the question. The question, "How many use full sheets in brood-frames?" showed that 30 voted yes, and that 20 used only starters, and only 3 none. A good many others did not know what they did want—that is, they had not settled whether they want to use full sheets, starters, or no foundation at all. As to the matter of building worker or drone comb without foundation, Mr. Axtell said he uses special colonies. He takes out all the combs, and makes them build another entirely new set; and by selecting those with young queens he gets worker comb. If they build one or two combs they will build drone-cells. Mr. B. Taylor corroborated this.

FIXED DISTANCES.

Along about this stage of proceedings, "fixed distances" was discussed by your humble servant. As I have already given my ideas on this subject, I will not repeat them here; but I was surprised to see that there seemed to be in the convention a recognized need of fixed distances. Seventeen, by a show of hands, used fixed distances of some sort, either in part or in whole; 35 used hanging frames altogether.

THE QUESTION-BOX.

This was introduced about this time.

Can first-class honey be produced in sections without separators?

A good many answered yes.

What is the best method of preventing bees from sticking the upper stories of hives to the lower ones with propolis?

Use close and tight-fitting joints. A little piece of grease rubbed on the places of contact will help very materially to keep propolis off.

What shall we do with our swarms of bees when not wanted?

"Return them to the old stand," Dr. Miller said.

Is there any difference in color and quantity between honey extracted from light-colored combs and that extracted from dark?

Dr. Oren answered no. He had used combs 15 years old, and the honey harvested from them is as nice as that from new combs.

Is spring dwindling worse in the cellar than outdoors?

The general consensus of opinion seemed to be that it was. During severe winters, bees do better indoors, and in mild winters outdoors.

What is the objection to a house-apiary?

Mr. Hambaugh replied that he had used one, and abandoned it.

THE REQUISITES NECESSARY TO SECURE A HONEY CROP.

This was a paper by Prof. Cook, and in his absence it was read by Mr. Newman in his characteristic clear voice. After regretting his absence, Prof. Cook referred to the difficulty of handling such a theme, and that it was not of his own choosing, and mentioned the fact that Dr. Miller would say, "I don't know." This came in very "pat" right here, because, during the convention, the doctor's "I don't knows" were a subject of banter. Getting down to the theme, Prof. Cook urged the necessity of successful wintering, and giving good protection to bees in the spring. His experiments during the past few years have proved conclusively that protection pays an exceedingly good profit. Chaff hives will do, but he prefers an outer case and excelsior packing. We must have prolific queens. He was not sure but it would pay to requeen an apiary every year, or at least every second year. Strong colonies when the season opens up, are another requisite. And then he came to the question, "Why do the flowers refuse to secrete nectar?" He would like to quote Dr. Miller's modest sentence—"I don't know." He said, that last year we had the rain and warmth, so the usual conditions were not lacking. The only explanation he could offer was, that, the year before being so terribly dry, the young plants were so blighted that they could not recover, so they were unable to perform their usual functions. He cited the fact that a young calf or colt partially starved never fully recovers.

At the close of the essay Dr. Miller said, that, whether Prof. Cook's theory were correct or not, the result would be the same. His outlook during the past season had been good—neither too wet nor too dry. Some one asked, "What was the cause of the failure?" Dr. Miller promptly responded, "I don't know." The doctor managed to bring in this modest sentence very adroitly a number of times, and each time laughter and general fun was the result. A good many stated that they had all the favorable conditions, and yet nectar was wanting during the past season.

ARE ITALIANS OR HYBRIDS PREFERABLE IN AN APIARY RUN FOR HONEY?

This was the topic of an essay by C. F. Muth. He gave good proof that Italians are superior. They are more handsome, they are gentle, and give as good results as any, in honey. According to his experience, the Italians give him the largest crops. And the pure stock are always best supplied with winter stores after the winter season.

As the time was limited, discussion was cut off, and we listened to the report of the General Manager of the Bee-keepers' Union. Mr. Newman showed, by nearly a score of instances, that the Union had always been triumphant. It had either won the suit, or had brought such influence to bear that the enemies of the bees dropped the matter without litigation. The most important thing of all, it seems to me, was that the *late* cases against bee-keepers have been killed by a recent decision of the Superior Court of Arkansas. The Bee-keepers' Union has nearly a score of *precedents*, and the valuable aid which *this* gives to the industry of bee-keeping in all future litigations can not be overestimated.

The following officers were elected for the ensuing year:

President, P. H. Elwood, Starkville, N. Y.; Vice-president, Eugene Secor, Forest City, Ia.; Secretary, C. P. Dadant, Hamilton, Ill.; Treasurer, E. R. Root, Medina, Ohio. The next place of meeting is to be at Albany.

In conclusion I can not refrain from saying that this meeting was one of the best, if not *the* best, in enthusiasm, good-natured banter, in attendance, in the *practical* character of the discussions, in the character of the *men* and *women* who went, and last, but not least, in the *business* done, and recommendations made, in the history of the association; and I hope this is only a side-show of the good times coming, when the association shall be incorporated under the laws of Illinois, and when the membership, instead of its present floating character, shall be permanent, with a long list of life-members, and annual members who keep up their dues, whether able to be present or not.

HEDDON'S HONEY.

WHAT MADE IT SELL SO FAST?

Mr. Root:—You remember the little advertisement I placed in your paper a short time ago, offering my this season's crop for sale. Well, sir, it is all gone; and as I suppose you do not charge any thing for back-action advertisements (I know we do not in our newspaper), I want you to let me say in this article that my crop this year, of about 20,000 lbs., is all gone, and I hope all my customers will see this and not put themselves and me to trouble and expense by ordering from me this season. If cards of thanks are in order, allow me to thank those who have patronized me, and, at the same time, perhaps I can do your readers and my brother bee-keepers some good by telling them how I came to sell my crop so quickly.

First, I have learned how to (and do) take pains to produce and care for my extracted honey, after taking out, in such a manner that it is ripe and fully equal to any comb honey in flavor and consistency. At least, this is what I *aim* to do, believe I do do, and nearly all of my customers who have expressed themselves on the subject (and most of them have) say I do; and when they once sell this honey to their customers, they clamor for more; and nearly all other extracted honey found upon the market will not fill the bill, because it is not rich and smooth like thoroughly ripened honey. To be sure, it costs a little more to produce it this way, but not so very much either, when one knows just how to do it.

Another point is, that, notwithstanding the short crop and scarcity this season, I have *kept the prices down*. This has given me a broader sale, and consequently a better chance to introduce my goods, which I have found in all lines of business it pays to have of such quality that they advertise themselves. Just here let me say to all supply-dealers, no matter what line of goods, I believe the cheapest way to advertise and build up a trade is to furnish such goods as will give the best satisfaction clear to the end.

I believe I have touched upon some of these points in my former articles; but as new bee-keepers are coming into the field, and you are getting new subscribers among the old ones, if you desire I will furnish you an article on the subject soon, giving a full account of how I manipulate the bees and hives.

Dowagiac, Mich., Nov. 14. James Heddon.

EXPORTING QUEENS.

G. M. DOOLITTLE TELLS US WHAT HE HAS DONE.

A letter came to hand a few days ago, from New South Wales (so I take it from the print on the postage-stamps). The name of the sender is so poorly written, together with the post-office address, that I am not sure what it is; and as the writer says he is a reader of Gleanings, I will, with your permission, Mr. Editor, answer through the columns of Gleanings. Before doing so, however, I wish to say a word or two regarding this matter of writing addresses when sending letters. The *address* is the most important thing in any letter. No matter how important questions may be asked, or how many goods you may order, you can not obtain what you are after unless you fix it so that the one who is to accommodate you can make out where to send what you want, so it will reach you. If your address is not printed on your envelope or stationery, you should take *extra* pains to write your address plainly, even if it takes you longer to write that address than it does the body of the letter. One thing occurs to me just now: Write your address the first thing in beginning your letter. By so doing you will not forget it, as some are prone to do, and, what is of more importance, you will write it much plainer if written on the start than you will afterward. Many of the letters which I receive I can read very well for the first few sentences; but as the writer warms up, or gets tired, as the case may be, he pays less and less attention to his penmanship, and the last end winds up with little less than a scrawl, name and all. I will say no more on this subject, for fear I may get to scolding, except to say, that, when you get to a point where you have to answer many letters daily, if you ever do, you will look at things in a different light along this line than you do

where you write a letter only as often as once a week or once a month.

In the letter alluded to above, I find the following: "It has just come to my knowledge that you have successfully exported queens to Australia; and as I am anxious to obtain some of your stock, would you let me know if the information I received is correct?"

I am sorry to say that the information is *not* correct. Some five or six years ago, a party living in New Zealand wished me to send him some queens. I wrote him that it was very doubtful about my getting them there alive; but I said if he would stand half of the loss, if the queens failed to come alive, I would try the matter by way of experiment. To this he agreed. There is only one proper time to try this experiment from this State, and that is in October, this being as late as we can risk shipment here, on account of cold, and as early in the spring as they can well be received in Australia.

When the proper time arrived, I prepared the queen to be sent, to the best advantage as I considered it, and started her. She was just 37 days *en route*, and reached there alive, so that she "kicked around a little," according to the information I obtained from my friend, but soon died. As he wished to try again, we did so; but instead of the second going in 37 days, she was 72 days on the way, and, of course, died long before she arrived. In thinking of these long journeys in the mails, it must be taken into consideration that the life of the worker-bee, under the most favorable circumstances, is only about 45 days during the summer months; and when we come to place them under as unfavorable conditions as they are while confined to the narrow limits of a queen-cage, it is not surprising that they should not live out their allotted time. After the workers all die, the queen does not survive a great while, so that I consider it an impossibility to get a queen to New South Wales alive, with only the set of workers that are placed with her to start with, especially as the letter I am answering was 54 days on the way. If, after the queen had been on the way about 20 days, some practical apiarist could receive it, open the cage, and put a fresh escort in for the queen, seeing at the same time that the candy was fresh and in abundance, and after the next 20 days the same thing be done over again, I think there would be no doubt but some queens might be sent alive from here to Australia. During the last year I have received queens from Italy for parties in California by mail. I placed them in fresh cages, and gave them fresh bees, thereby getting them through in fine order, when only failure had been the result of former trials. I have also assisted parties from the West in getting queens over to Ireland in the same way.

THE NAMELESS BEE DISEASE.

After speaking some good words about an article of mine in GLEANINGS, and telling how one of their "great lights" in Australia agreed with me, the writer goes on to tell how, at a meeting "in this colony," called for "the advancing of the interests of bee culture, etc.," it was "asserted that the nameless, or shaking bee disease, is nothing but a species of intoxication, arising from the consumption of fermented pollen and honey by the bees," and asks, "What do you think about it?" He seems to think, that, if there was any truth in this assertion, the drones would have the disease as well as the workers. This would be so if the trouble were in the fermenting of honey; but if it was fermented pollen, then the drones would not have it, for, as far as my experience goes, mature drones never eat pollen nor have any thing to do with it. I should not like to express a positive opinion in the matter; but this one thing I have noticed: That in all cases of the nameless disease which I have seen in my own neighborhood and elsewhere, it always disappears with cold weather, and does not again appear till warm weather comes to stay, whether the queen of a colony is removed or not. I also had one case where the removal of the queen did no good, as the disease kept right on till cold weather came, when it disappeared. This showing, only in warm or fermenting weather, would give a little coloring toward the fermentation theory. G. M. DOOLITTLE.

Borodino, N. Y., Nov. 15.

Friend D., I am very glad to know that you have done so much in this line. I came to the conclusion, long ago, that the limit of time that a queen might be out of the hive with a single escort is just about where you put it. In regard to the nameless bee disease, you may be right; but we have almost always, if not always, cured it by giving a new queen.

EIGHT VERSUS TEN FRAME HIVES.

IN FAVOR OF LARGE HIVES.

In Oct. 1 GLEANINGS you call upon the California bee-kings to give their experience with eight and ten frame hives. While I am not a bee-king (a drone) I have had much experience with the two sizes of hives, my apiary of nearly 400 stocks being about equally divided between them. I produce only extracted honey, and all my remarks relate to the production of that article.

Until the past two seasons I kept bees in a very poor locality, where a good honey-flow was unknown. There I thought the eight-frame hive was plenty large; but after experiencing a good honey-flow I concluded that the ten-frame was too small, and twelve would be about the right size. In California we do not storify and extract at the end of every season, *a la* Dadant, but extract every week or ten days. While eight frames give brood space enough for most queens, an eight-frame super will not hold as much honey as a strong stock can gather in a week during a good honey-flow; and, if extracted oftener than once a week, the honey is unripe and inferior. Two supers are too much room, and a nuisance besides. Some of my best stocks would fill every cell full in less than a week, and would of necessity be idle until extracted from. In these cases the ten-frame hive, having two combs more to fill, would have from 10 to 12 lbs. more honey. A twelve-frame super would have been about right for many of my hives. These large supers are objectionable, however, as, when first put on in the spring, and before being occupied by the bees, they make the hive almost to cool; and too use dummies or fillers with them is another nuisance.

I believe the old discarded Long-Idea hive is the proper thing for extracted honey in California. It is the best non-swarming hive extant. The most prolific queens can find a cell for every egg they can lay; and, when extracting begins, as many of the combs can be used for storing as are required. When building up in the spring, by the use of a division-board the hive can be so contracted as to meet the requirements of any stock, and the remainder of the combs are where they will be protected from moth, mice, and robber-bees, and right to hand when wanted. The hive, however, will require a little more lumber than a two-story hive with the same number of frames, and I believe the heat in them will be greater. WM. G. HEWES.

Newhall, Cal., Nov. 6, 1890.

For extracted honey, and in your locality, you are doubtless right. Recognizing the needs of just such as you, we offer in our catalogue both the eight and ten frame hives — the latter at a slight additional cost. But the vast majority of apiarists and localities demand the eight-frame size; indeed, J. F. McIntyre, of your State, gives some pretty conclusive arguments for the smaller hive. See page 674.

THE CLARK SMOKER.

THE SMALL VERSUS THE LARGE TUBE: BEST FUEL.

We have used the Clark smoker for several years entirely. We like it on account of throwing the smoke with so much force. It has had two serious objections, however. It would drop creosote, and leak fire. You may say, "Clean your smoker." I did clean mine. In fact, I spent so much time cleaning that I am pretty sure Dr. Miller thought me very fussy, although he was too kind to say so. But still the black sticky stuff would drop over my clothing and on our nice white sections when we least expected it, and proved very annoying indeed. Especially was this true if the smoker was heated very hot. This year we have used the improved Clark with the large tube, and have not had one particle of trouble with creosote, and you don't know what a comfort it is, unless you have been bothered in the same way. The large tube needs very little cleaning; still, it is better to clean it occasionally. A stick pushed through the tube has been recommended as a means of cleaning it. Of course, the stick must be green, so that it will bend readily. We dislike it, as, in this way, all the dirt will be sent into the bellows. A heavy wire, curved about the same as the tube, the point flattened and bent, forming a little hook, makes a very good tool to clean it with.

Another improvement is a piece fastened on the smoker in such a way that the lid slides inside of it, making it very close and snug, so that no fire can leak out. There was one objection to this, however—there was not enough draft to keep it burning. To obviate this, Dr. Miller punched several small holes in the lid, not large enough to emit sparks, but sufficient to give air enough to keep it burning, and it worked like a charm. In using the Clark smoker without the improvements, I had a great deal of trouble about burning my clothes, often large holes being burned before I discovered it. This summer I have not burned a single dress, and only one apron, and that was the result of my own carelessness, as I had left the lid open. The feeling of security is worth a great deal. Mr. Root has my heartiest thanks for the improved smoker.

Another point in its favor is the increased durability. One with the large tube will, I think, outlast three of the others. We have used two throughout the season, and they are as good as ever, with the exception of the one Dr. Miller stepped on, which is slightly demoralized.

For fuel we use, mainly, turning-lathe shavings made from hard wood. Some time ago Mr. Root sent us two barrels of excelsior, which was very nice indeed. It does not last as long as the turning-lathe shavings, but is very good to light with, as it catches so quickly. The two mixed make a very good fuel. The very best thing to light a smoker with that we have ever tried is a small piece of saltpeter wood. On a very windy day the matches will go out almost as soon as lighted; but if the least bit of a flame touches the wood it will burn, and not die out either. It certainly is a great saving of time and patience. We do not like to get along without it, and keep a small box of it at each out-apiary. Perhaps some one may like to know how to prepare the saltpeter wood. It is very easily done. Take ¼ lb. of saltpeter; put it in a jar with a gallon of water. After your saltpeter has dissolved, break your rotten wood in small pieces, and throw into the jar. Let them soak for a day or two, then take out and thoroughly dry, and it is ready for use. Try it, and see how you like it. Emma Wilson.

Marengo, Ill., Nov., 1890.

Perhaps I should introduce our friend who writes the above valuable article as Dr. Miller's assistant, his sister-in-law. The saltpeter wood mentioned above was given in our journals a good while ago, but I am afraid only a few of our bee-keepers have been providing themselves with it. It certainly is a very great aid in starting a fire quickly. It seems to me, friend Emma, it is a little surprising that the smoker you speak of sustained injury because the doctor *stepped* on it; and, by the way, is that the way he is in the habit of tramping around over things when he gets in a hurry? Your suggestion of hard-wood *turned* shavings for fuel is also a good idea. I was intending to write this up after my visit at your place, but I fear I forgot it.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

Question 173. *Taking a series of years, will a colony do better to have its brood-nest contracted at harvest time, or to remain without contraction the year round?*

I do not know.
Illinois. N. W. C. Mrs. L. Harrison.

We never contract the brood-nest at any time.
Wisconsin. S. W. E. France.

With the average bee-keeper, without contraction.
Ohio. N. W. H. R. Boardman.

Much depends upon the bee-keeper. Contraction, when wisely practiced, is best.
Michigan. C. A. J. Cook.

We never contract the brood-nest at harvest time. It does not pay. We contract a little in the fall and in the spring.
Illinois. N. W. Dadant & Son.

"Do better" at what? If for quantity of honey stored, contract, unless the "harvest time" is protracted.
Ohio. N. W. A. B. Mason.

For extracted honey I would say, do not contract the brood-nest except, possibly, for 30 days in the last part of the main honey-flow.
California. S. R. Wilkin.

I rarely contract the brood-nest, except in case of weak colonies in spring, and when hiving a new swarm.
New York. C. G. M. Doolittle.

We have practiced contraction for a good many years, and believe a little of it is a good thing. Too much is worse than none.
New York. C. P. H. ELWOOD.

I do not know. As a rule, I do not think there is much advantage in contraction, except for newly hived swarms. Then it pays.
Illinois. N. C. J. A. GREEN.

It would require more experiments than I have made to give my answer much value. My opinion and practice favor a small brood-chamber not contracted when surplus begins.
Ohio. N. W. E. E. HASTY.

If one wishes to secure all the white honey in sections, it can be more readily done by contracting. I would advise contracting as much as possible for winter.
Vermont. N. W. A. E. MANUM.

Taking a series of years, or one year, I am very firm in the belief that the contraction of the brood-chamber at the right time in the honey-harvest is the most profitable manipulation a comb-honey producer ever did.
Michigan. S. W. JAMES HEDDON.

Contraction of the brood-nest is good only in early spring, for the purpose of making the bees breed up. It is advisable at no other time of the year, excepting, perhaps, for safe wintering, if the colony is weak in the fall.
Ohio. S. W. C. F. MUTH.

I don't know. For a single year more honey can be thrown into a super (theoretically at least) by contracting; but when you say "a series of years," that may alter the case. My observations of late years have made me less sure that contraction has any value.
Illinois. N. C. C. MILLER.

In running for extracted honey I leave the brood-nest the same size the year round; for as long as there is any prospect of honey to be gathered, I want plenty of bees to gather it; and when the honey fails, the bees will do their own contracting as far as brood-rearing.
Wisconsin. S. W. S. I. FREEBORN.

At present we are opposed to contraction. It induces swarming. When running for comb honey it leaves the brood-chamber bare of honey for winter stores. In our out-apiary run for extracted honey, contraction caused swarming in nearly every instance, while hives left with no restriction to the queen did not swarm. We do not believe in close contraction.
New York. E. RAMBLER.

The above reports seem to indicate pretty clearly that contracting about or just before the harvest time is not so much practiced now as it used to be when most of the readers of GLEANINGS had only a few colonies, and could look at every colony night and morning, to see when it needed more room. Our friend Dean, formerly of River Styx, near here, used to be one of the champions in this line; and for building up colonies it certainly worked wonders so far as crowding the bees and the honey into surplus-receptacles was concerned. The recent demand for eight-frame instead of ten-frame hives seems to be in line with the idea.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

N. A. B. K. A.: HOW TO PROVIDE FOR PERMANENT FUNDS: A GOOD SUGGESTION.

Friend Root:—As you said at the Keokuk meeting, that you would undertake to get twenty or thirty life-members to the association, and as we must try to manage to save a certain capital for the association, I suggest that we make it a point to have the funds thus gathered invested in some safe interest-bearing investment, *the interest only* to be used by the association. In this way we can perpetuate the good work and create an interest. I would even go further; for, as the yearly subscribers are usually sufficiently numerous to pay annual expenses, it seems to me we ought to set aside also the affiliation fees of the State, Territorial, and local associations. In a few years we should have a capital large enough to enable us to offer prizes and premiums for competition, and we should raise an interest much greater than formerly in our meetings. Would you be so kind as to take the matter in hand, and discuss it in GLEANINGS? We must do something to get out of the old rut. C. P. DADANT.
Hamilton, Ill., Nov. 7.

All right, Secretary Dadant. We will back you in all your suggestions as far as we can. Now, then, who among the readers of GLEANINGS is willing to pay up and stand by us in the effort to make the North American Bee-keepers' Association a permanent institution? It will cost you $10.00, it is true; but after that you can attend the convention for forty years, if you live so long, and not pay any thing. I have in mind quite a few of our readers who, I think, might, could, and should stand up. Let us hear from you. Who will be first? So far as I know, the editor of the *American Bee Journal*, and Ernest and myself, are at present the only life-members. Who will stand with us?

TO THOSE CONTEMPLATING GOING TO THE ALFALFA FIELDS.

Friend Root:—There is some inquiry in GLEANINGS about whether it would be profitable to move bees to the alfalfa fields of the Southwest. I would not advise it on that source alone. I had two years of experience in Utah, in the Great Salt Lake Valley. I had at one time 44 colonies, and I do not think I ever got any honey from the hay-fields, although there were hundreds of acres near. Where it is raised for hay it is cut as soon as it gets in full bloom, and before it secretes any honey. Where it is raised extensively for seed it is different, and one may usually depend on a fair yield. It is of excellent flavor, but a little inferior to sweet clover. Sweet clover grows promiscuously all over the Salt Lake Valley, wherever there is moisture enough for it to get a start, and I think that is what makes Utah honey the finest flavored in the world. A. MCCAY.
Olympia, Wash., Nov. 15.

WILL FREEZING HURT FOUNDATION?

Where foundation is kept dry, will freezing, light, or air, injure it in any way for use next year? JAS. A. ADAMS.
Grimm City, Mo., Nov. 10.

Friend A., the freezing will do no harm at all, providing some inconsiderate person does not

attempt to handle it while it is cold. I do not know of any thing that vexes me much more than to see people who have had experience enough to know better, undertake to move a lot of foundation when it it is almost icy cold. Of course, it flies to pieces like thin glass; and then after they have done a lot of mischief they sometimes undertake to repair it, and in so doing they break a lot more of it. Never touch foundation, nor even hardly look at it, when it is in a cold room. Air and light have the effect of bleaching and hardening thin foundation; and as this makes it a little more difficult for the bees to work, it is generally considered better to have your foundation shut up in a box, protected from air and light as much as possible during the winter time.

BOTTOM VENTILATION, AND THE TOP SEALED TIGHT.

Some five years ago I commenced to experiment along this line. The family carriage having received a new top, I utilized the old leather by using it instead of burlap to cover the brood-nest, cutting it to fit on all sides neatly, using this on four colonies, two strong and two weak, using burlap on all others. The leather was laid flat on the frames. They all came through without loss; but those with leather for covering built up much earlier in the spring, and were ready for sections in advance of those covered with porous material. These results being nearly uniform for four seasons, I am this fall using either leather, rubber cloth, or oil cloth double, first laying three half-inch strips reaching across four frames, then this covering pressed down neatly; over this, six to eight sheets of newspaper, then the chaff cushions. This is my plan, with the entire apiary of 25 stands. I leave the entire entrance open (Simplicity entrance), and shall expect good results.

Guys, Md., Nov. 13. Wm. S. Adams.

Friend A., your leather is, to a certain extent, porous. I know by experience that it is not to be compared with rubber. My feet rebel at once against any kind of rubber casing; but I can wear dry leather boots very well, unless the weather is quite hot. In hot weather they (my feet) insist on cloth shoes, and will not be quieted with any thing else. I should think that leather would be a splendid cover for bees, if it can be had at reasonable prices.

ONE OF THE CACTI.

I send you a flower by mail. It seems to be a honey-plant as well as a beautiful one. The honey was running out of it when I got it. They tell me that every flower had drops of nectar. Will you please name it, and tell where its native place is? J. M. Kinzie.

Rochester, Mich., Nov. 10.

Prof. Cook replies as follows:

The flower above is one of the cacti. It is a large, brilliantly colored, bright scarlet blossom, and forms a strange contrast with the leafless stem that bears it. These plants come from the arid, sandy regions of Arizona, Southern California, and Mexico. I am glad that they are honey-plants. It is reported that our "jack-pine plains" of Northern Michigan are localities where bees do exceedingly well. It is more than possible that the strange cactus regions of Arizona may be worthy a similar reputation. Who will inform us in the matter? It is worthy of remark, that the wonderfully beautiful "night-blooming cereus" is also a cactus. Its blossom is large, white, and exceedingly beautiful. A. J. Cook.

Agricultural College, Mich., Nov. 15.

KEROSENE TO KEEP BEES AWAY FROM WATERING-TROUGHS.

I use a kerosene-barrel for watering stock, and am not troubled with bees. I provide a suitable place for the bees to drink, and pump fresh water in their trough every morning. The secret of it is, bees dislike kerosene oil nearly as bad as our editor dislikes tobacco.

Eau Claire, Wis., Oct. 25. C. B. Jackson.

Thank you, friend J., for the compliment. If you have a kerosene-barrel, of course you have the smell of kerosene always around your watering-trough. The idea is a good one. It now occurs to me that we used half a kerosene-barrel for many years for watering our cow, and I have never seen a bee near it.

WHEN TO MOVE BEES A SHORT DISTANCE; LICE ON IMPORTED BEES.

I have 16 chaff hives in the garden, around the fence. I should like to move them about 125 feet, where the rest of the apiary is. Can it be done without any loss of bees? If so, when and how?

My friend C. received from Italy a short time ago a queen and attending bees that had red lice on them, or something that looked like a wood-tick. The lice were sticking on their shoulders and under their wings. The abdomen of the tick was short and round, and a brownish red color. What are they, and are they injurious to the bees? Jesse McNeely.

Putan, Pa., Nov. 8.

When the weather turns cold, move the bees where you want them. After bees have been confined a few weeks they will readily return to their new location. The lice you speak of are often found on imported Italians, particularly on the queens. In fact, we rarely have an importation without seeing some of them. They are called the Italian bee-louse. They do no real harm, although we always remove them from the queens.

LONG FLIGHT OF BEES; IS IT TRUE?

This strip of paper states that bees fly 14 miles. Do you think it is so? F. Tompkins.

Lawsville Center, Pa., Nov. 10.

The following is the clipping referred to:

INSTINCT OF BEES AND ANTS.

How insects, especially bees and ants, find their way back home is one of the marvels of natural history, says a farmer in the St. Louis *Globe-Democrat*. My wife keeps bees, and my little boy has a taste for entomology, and is always making experiments of one kind or another with them or other insects. He has been trying to find out how far away a bee can be taken and not get lost, but has not yet succeeded. I live in the country, fourteen miles from the court-house, and during the summer that boy has been in town with me a dozen times, and on each occasion he brought some bees along in a little tin box. He colored their wings with violet ink, so that he would know the insects again, and let them go in the heart of the city. The first time he did it he released six bees at the Biddle Street market, and I believe they got home before we did, because they were all on hand attending to business the next mording, just as though they took a fourteen-mile journey every day. Occasionally a bee fails to come back, but in nearly every instance they return in a few hours. Once

he let five, whose wings had been colored red, out of their box at six o'clock in the morning, on the corner of Fourth and Biddle Streets, while his little sister watched the hives at home. One, arrived, tired almost to death, and dropped at the door of the hive a little before two o'clock, and three more came before five o'clock in the evening, all apparently much fatigued. His experiments with a nest of large black ants have been equally satisfactory, for some marked ants have found their way home, after being released, more than a mile distant from the hollow tree in which they lived. How they do it is a question, but they generally do, and so it is likely the travels of both ants and bees are much wider than is generally supposed.

Friend T., I feel quite sure that the above extract is not true. It seems to me strange that our newspapers will get hold of such false statements, when careful facts from careful observers are scattered all through our bee-journals. Perhaps it might be well to hunt up that boy and see whether any such experiments were ever really made. The most reliable experiments that we ever made in this line, I believe, were made by our friend H. A. March, of Fidalgo, Washington.

WHAT KIND OF BEES ARE THEY?

They are very yellow below their shoulders, but their head and shoulders are black, not quite as large as Italians, and splendid robbers.

Ernest's notes are very interesting, also many other things in GLEANINGS. Almost every number brings items worth many times the subscription price. A. P. FLETCHER.

Proctorsville, Vt., Nov. 8, 1890.

It is hard to tell, from your description, what the bees are. The fact that those mentioned have very black shoulders (thorax) leads us to believe that they are old Italian bees that are tired of honest toil, such bees having learned that stealing sweets is faster and apparently more profitable. These wear the fuzz off their shoulders in crawling through holes and narrow crevices to steal. Young Italians are not given to robbing, and it is only the old bees that have learned the trick, usually.

AN APIARY OF BLACKS AND ITALIANS; THE LATTER SECURED 30 LBS. PER COLONY, AND THE FORMER NONE.

I see a great deal said about the Italians. They are the best with me. I have 38 colonies; 18 of them are black, or nearly so. I did not get a single pound of surplus from the blacks; but from the 20 Italians I took 600 lbs., or 30 lbs. per colony, of nice honey, and left them in as good or better condition than the blacks. I am going to put Italian queens in all of them next spring. The past season was very bad for honey, so we sold all of ours as fast as we took it out. I have bought 480 lbs., and I shall have to buy more if I keep it for my customers. J. F. TEEL.

Elmont, Texas, Nov. 8.

A DEMAND IN CALIFORNIA FOR PERFORATED ZINC AND A REVERSIBLE HONEY-EXTRACTOR.

There will probably be a demand for queen-excluders in California until all apiaries are supplied, and a good strong reversible honey-extractor should sell well. I have seen extractors in this county that cost $50.00 each, and were not well made either. I shall be pleased to receive a sample of your new perforated zinc.

Fillmore, Cal., Oct. 27. J. F. MCINTYRE.

BEES AND NEIGHBORS.

I am a poor man, and have a lot of 3½ acres, and am crippled at that. I had my right foot amputated about a year ago. I am in debt quite a bit. I once thought I couldn't get through. Alas! a kind friend lent me money and took a mortgage of $480, and gave me good time; and if I can only keep up the interest, all well. This is a great help for me. If I can only live and support my family, which are three besides myself, and pay my interest, I am well satisfied. I then took a notion to go into the bee business, so I got 23 good colonies, and I should like to have about 100 in all, then I could get along well. I can't work by the day. Hands are plentiful without a cripple, to work by the day. Now, the question is this: Can a neighbor do any damage to me by the law for keeping so many bees? My bee-yard is about 10 rods from his dwelling. He says they will hurt the grapes. Now, what shall I do? I surely can't keep them away. Our nearest town is Middlebury. We live three miles from it, but there are three lots here close together. The other is owned by an old widow woman. She won't say any thing. How far away should my bee-yard be from the highway? It is at present about six rods from the public highway. My bee-yard joins his lot. EDWARD GEGAR.

Middlebury, Ind., Nov. 10.

If it were not for the general prejudice of ignorant people, your bees would do well enough where they are. On the whole, we would move them to the back yard; or, at least, a hundred feet from the street. Bees will not injure sound grapes; but they will attack those injured by birds or insects. Still, even this amounts to but very little. We have for years kept bees, and had grapes growing in the same yard, and we have little or no trouble. If you explain the matter kindly to your neighbor, occasionally presenting him with a nice section or jar of honey, he will let the matter pass. In view of your misfortune he ought to be a little lenient, any way. If he should be ugly, you can have the aid of the Bee-Keepers' Union, providing you are a member. Thos. G. Newman, of 246 East Madison St., Chicago, is the General Manager.

HAS BEE CULTURE BEEN INJURED BY THE USE OF PARIS GREEN, ETC.

I returned from Michigan a few days since, after a good visit with my people, and particularly with my brother, who keeps bees. He was very enthusiastic on the subject of bees—in fact, so enthusiastic that I brought a five-frame swarm all the way in my hands. I have a cotton plantation, and believe I could buy a few bees, and, with proper study, I could make it profitable. I had previously heard of marvelous yields of honey in this locality, but I was not personally acquainted with any of the bee-keepers. I find, upon partial investigation, that this has been a favored location, but that all have become discouraged, and are anxious to sell out. They say that, since the use of Paris green for killing cotton-worms has become general, their bees are killed, and all chances of profit destroyed. Have you, in any number of GLEANINGS, or elsewhere, any thing to throw light on the subject? I do not want to give up the bee enterprise if there is any way to get around the poison question. W. H. BRISTOL.

Shreveport, La., Nov. 7.

Friend B., I do not think the bees have suf-

fered very much from the cause you mention. There was some apprehension about Paris green when it was first used; but, so far as we have been able to learn, lack of attention has very much more to do with it than any injury resulting from poisons used to kill insect enemies. Of course, we don't know how it may be in your neighborhood; but if you look into the matter carefully, we think it will be as we state.

HOW TO MAKE A WATERING-PLACE FOR BEES.

I use a ten-gallon keg; bore a hole near the bottom, put in a faucet, then take a soft pine board about 2 ft. long, and with a hatchet I hack it all over on one side to make it as rough as possible. Set the keg on a block (a box will do) about 18 inches high. Now place one end of the board just beneath the faucet, and the other end in a very small trough. Fill up the keg; cover it well, so that no bees may fall in; turn the faucet so that it will drip just to suit. With this arrangement near they do not trouble me much in the watering-trough, except on a very hot day, when a little coal oil rubbed in the trough just above the water will keep them away. They will not go into a trough that is painted with coal tar inside.

Our honey season is over, with an average of about 30 lbs. per colony. Bees did fairly well, considering the dry season. Ed. E. Smith.

Carpenter, Ill., Nov. 7.

Thank you, friend S., for your excellent suggestion in regard to a watering-place.

AN OUTSIDE CASE FOR WINTERING.

I see several inquiries in reference to outside winter cases for the Simplicity and Dovetailed hives. For this winter I have packed all my single-walled hives by making a case, out of rough inch hemlock lumber, the top of which is first covered with boards from old glass-boxes; then a covering of heavy manilla paper, well tacked, and coated with two or three coats of good thick paint. The case is made large enough to allow putting old newspapers or heavy paper over the hive when it is dropped down over. As the hives are 10 inches deep, I made a cover of ten-inch stuff. This made a good winter double-walled hive, and I think it will be as good to winter in as chaff hives. I have packed 30 colonies so this fall, and will report success. For the first time in years I had to feed ten or twelve colonies; but with a modified Miller feeder it was little trouble, as I could feed from 10 to 15 lbs. in 24 hours.

T. G. Ashmead.

Williamson, N. Y., Nov. 10, 1890.

BEE-STINGS FOR RHEUMATISM; A PHYSICIAN'S STATEMENT BEFORE THE FRENCH ENTOMOLOGICAL SOCIETY.

Dr. Al. Laboutbene, at the meeting of the French Entomological Society, held on March 13, 1889, gave a short abstract of a paper published in 1888 by an Austrian physician, Dr. Terc, who seems to have made extended experiments for a number of years. Dr. Terc asserts that a person stung by bees acquires thereby a relative immunity from the consequences of subsequent stings; in other words, that the virus of the bee-sting acts like a vaccinal inoculation against its own poison. The immunity lasts about six months, sometimes less, probably according to the number of stings inflicted on a person. Persons suffering from acute rheumatism require a larger number of bee-stings to feel the usual effect of the poison; but as soon as, by inoculation of a sufficient amount of virus, they have acquiried immunity against its effect, they will be free from rheumatic attacks as long as this immunity lasts.

A. J. Blankinship.

Eldorado, Ills., Nov. 16.

TWO DIVISION-BOARDS.

I notice what Mr. H. L. Jeffrey (pp. 771, 772) has to say regarding two division-boards. I deem the subject of very great importance to us bee-keepers. I have used two division-boards and paper packing, for many years, with the very best results. For beginners, your advice in the A B C, if I remember well, must be followed. Get your bees in good trim for winter in time—in this part of the country, say the middle of October. The bees need time to fix up for winter. Gluing, patching, etc., must be done; and for all this, give your bees plenty of time in fall. The less you handle your bees in fall, the better for them.

The Dovetailed hive, with closed-end frames, is just the very thing many of us looked for.

HOW BEES MAY BE INDUCED TO WORK IN SECTIONS.

During a good honey-flow, remove the queen from one of your best colonies. Also remove or destroy all queen-cells. In a day or two, give to this queenless colony a hive with nothing but section frames, save one, which will be a brood-frame with queen-cells just started. The other brood-frames from the parent hive may be given to any populous colony for a few days. Then with the hatched young bees, strengthen the queenless colony as much as possible; and before a young queen appears, sections are filled.

I must thank you once more for the fine select tested queen you kindly furnished me last July. If one man owns a $100 queen in our country, I say fifty dollars can not buy my Aurea—thus I named her, on account of all rare qualities combined and possessed by her.

Rev. P. Stephen Stenger.

St. Meinrad, Ind., Nov. 10.

THICK TOP-FRAMES A SUCCESS.

Last fall I had 32 stands of bees in the thin L. frames; and wishing to have the best for preventing brace-combs I studied all that was said in Gleanings respecting them, and came to the conclusion I would make my frame top-bars 1 inch wide and ⅞ deep. So I made 45 hives, dovetail pattern all but the dovetail, and slatted honey-boards, and made them enough deeper to suit the heavy frames. As it was a poor season I did not need many surplus cases on; but what I put on, on the new heavy frames, did not have any brace-combs above the frames; but where they were spaced a little wide there were some odd bits of comb from one to the other, but none above the top corner of the frames. Then, again, where some were spaced rather closer there were no braces anywhere. Again, by changing hives and swarming artificially two or three, and raising a few queens from my best stocks, I managed to get the thick and thin top-bars in the same hives. One in particular was like this: Two of the heavy thick frames, then one metal-cornered frame; then two more thick ones, then another metal-cornered one; and, last, two more of the heavy frames, and now there is not a particle of brace-comb on the thick top-bars, except where they come next to the metal-cornered ones, and then the thick ones are braced fast to the metal-cornered ones, and are also built right up and fast to the slatted honey-board. You see those were the only places where brace-combs were built right from the two metal-cornered ones.

John Hammond.

Buena Vista, O., Oct. 24, 1890.

MYSELF AND MY NEIGHBORS.

Then one of the twelve, called Judas Iscariot, went unto the chief priests, and said unto them, What will ye give me, and I will deliver him unto you? And they covenanted with him for thirty pieces of silver. And from that time he sought opportunity to betray him.—MATT. 26:14—16.

Judas betrayed his master, Christ Jesus, the Son of God, for thirty pieces of silver. Was he crazy, or was he a fool? One can hardly believe that pure rascality or depravity, or selfish greed, should ever prompt any human being to such an awful piece of hypocrisy and treachery, especially for such an insignificant sum of money. How *could* Judas have ever been in such a strait or in such need of a little money as to go into such an *awful* speculation as the one narrated above? Mankind has for all ages stood aghast at the fearful inconsistency and folly of this shameful deed, especially when he by a *kiss* indicated to his enemies which was the Master. We are tempted to say that he could not have been in his right mind. The poor fellow must have been a monomaniac; and yet we read nothing of the sort in the Scriptures. God's holy book simply gives it as an illustration of sin in the human heart, and Judas is held up before us as a warning. In one sense, Judas *was* crazy; but isn't any man crazy in the same way, who barters his good name and his chance of future happiness for a few paltry pieces of silver? Cherished sin makes *anybody* crazy. He loses his ordinary good sense, and he becomes incapable of exercising ordinary judgment.

A great many excuses have been made for Judas, such as, that his faith in his Master was so great that he believed he would deliver himself by some wonderful miracle, and the result would only be for the general good. A good many people, since the time of Judas, have decided to do evil, and have excused themselves by saying that they *thought* good would surely be the outcome of it.

Well, what have bee-keepers and honey-dealers to do with Judas and his thirty pieces of silver? It has occurred to me this morning that many of us have something to do with Judas' inconsistency. We see a chance to get some money, and we push ahead to get it in our hands, with a foolish, shortsighted disregard of consequences. We barter our good name for a *few* pieces of *silver*. I do not know but I had better put it stronger than to say *we*, and come right down to the point, and say that sometimes it looks very much as if *A. I. Root* had been tempted to barter his good name for a few pieces of money. I want to make a plea for mercy, though, right here. Dear friends, you do not know what an awful busy life mine is. I am *too busy* to do *justly*, but God knows I do love "mercy;" and I am sure I try, about as well as a busy man can try, to "walk humbly before God."

You may, perhaps, say that I have no *business* in having so much "*business*." Well, that is true; and that is the worst thing I am guilty of. And I do not know but it is a pretty bad sign to have so much business that you can not see that it is all attended to as *honestly* as it should be. I will tell you how it is. I have been working very hard during the past fall. For some weeks I have not had any fun in the garden, hardly, because there are so many things to be looked after, and arranged and decided on. I have not even had the fun of studying over greenhouses—the new kind, you know, that is to be a *garden* when it rains and the sun is warm, and to be a *greenhouse* whenever every thing is frozen up solid. It is true, I have been dreaming of this new greenhouse nights, after going to bed, and at other times when I do not "have to" do something. Yes, I say to my shame, that my truant mind sometimes gets away on Sundays, even during sermons, and plans this new greenhouse, instead of listening to our good pastor. I have felt bad about it, and prayed over it; but the plans would keep working themselves out. And now during this fine weather in November I have been trying to get time to instruct workmen how to build it *after* the plans have been so long working and evolving in my busy brain. As a consequence, things have been somewhat neglected. Some days I feel as if I had no business in thinking about greenhouses at all—that I had better let well enough alone, and "stick to my knitting"—the journal, factory, etc. Why, I told Mrs. Root, only last summer, that, if my *present* frame of mind did not change, I would give up gardening. I fear it changed in about two or three hours. Overwork in the office pulled me back to my old nervous prostration, and then it began to be a question, "Should I enjoy myself out in the open air, with growing plants, and *live*, or stay in the office and defend my good name before the children of men, and *die?*" None of you need be worried, dear friends. I am going to live, and enjoy God's gifts outdoors, just as long as I can. If I can not do any better, when somebody says he has been wronged I will ask him how much money it will take to make it right, and fix it that way, without going into details. Some of the friends have, however, "got awful mad" because I suggested such a way of defending my good name. Two or three have declared that *money* would not do it, and I am afraid they are pretty nearly right, after all. Let me give you a sample of some of the burdens that oppress me just now. Please read the following letter:

A. I. Root—Dear Friend:—While it is an unpleasant task, yet I feel it my duty to write to you. This fall I bought of you alfalfa and mesquite honey to the amount of *one hundred and twenty four* dollars and some cents' worth. I asked you to do the best you could in the way of rates. After waiting a long time after I got the bill, the honey came, with, I think, $8.00 freight on it. It had been billed at local rates all the way, making three different billings. I wrote you about it, and got an answer which seemed to me quite short and indifferent. In this letter you say you had asked for rates; and as soon as you got them you would make it right with me, or words to that effect; but I have never heard from it yet. I afterward sent you an order for more honey, which came to *hand* all right, but it is awful stuff to call honey. It is about as dark as a low grade of New Orleans molasses—nothing whatever like the sample sent me. I sold some of it, and had some of it refused and returned. I will inclose some of the answers I got from the parties whom I sold it to. These letters are from neighboring towns where I sold it, where I had sold my own honey; the rest of it I sold in our own town; and I never did any thing in my life that has been so unsatisfactory. I would not *for one hundred dollars* have my reputation injured as this honey has done.

While I do not want to accuse you of willfully selling honey of this kind after praising it up as you have done through GLEANINGS, yet I think some one is grossly at fault for selling such honey and branding it first class. I do not ask you to take my word for it. If you doubt my word, I will send you a sample of it, and you can then see for yourself.

Very resp'y, G. B. SHELTON.

Brownsville, Pa., Nov. 21.

P. S.—After reading Our Homes these many years, and longing for them to come, and feeling that I know you personally, I do not think that you would allow this thing to go on if you knew it. G. B. S.

Below are the letters our good friend Shelton refers to, omitting addresses, for obvious reasons.

MR. G. B. SHELTON:—I return above, being very dark and unsalable. I could use good honey like last year's, but not this kind. J. K. B.

Mr. G. B. Shelton:—Your honey at hand, and we find by proper test that it is not satisfactory in regard to flavor, and will ask if you want it returned, as we can not use it.
Uniontown, Pa., Oct. 10, 1890. M. & B.

Mr. George B. Shelton:—The honey arrived safely, and I would have replied earlier, but have been away a day or two, and been quite busy also. I am sorry to say that I do not like the honey as well as what I have formerly had from you, nor do my friends like it. It seems to have a taste and smell like tobacco—that is the only thing that I can liken it to. What is the matter with it? E. A. J.
Charleroi, Pa. Oct. 15, 1890.

□ Friend S., I want to thank you, to commence with, for your concluding postscript. Even if you have been misused, and have suffered, it indicates that you feel *neighborly;* and my experience indicates very strongly, that, if a man wants to be treated in a *neighborly* way, he must *commence* in a neighborly way. While we do not agree to be responsible for mistakes that railroads make, we certainly do not mean to be indifferent to the interests of our customers. As we understand it, your honey passed over three different railroads. This, of course, would add much to its charge. While every shipper should be prepared to do his best in deciding upon the cheapest route by which to send goods, as a general thing the one who orders the goods can tell better the best route to have them shipped. As a rule our customers do indicate the route. Sometimes they tell us if we think we can make a better route, to do so; but it requires a man of large geographical knowledge and experience, and one who keeps constantly posted in regard to the railroad lines, to be able to help in this matter intelligently. We are already provided with guides and books, and every thing else that can help us in this matter of transportation, and we are still working hard for better facilities and more knowledge. I have often remonstrated with the clerks because of the brevity of their letters, and a seeming lack of interest in the needs of our customers. But they often tell me, that, to write at length, as I do, would take so much time that it is entirely out of the question; and as evidence of the truthfulness of their standpoint they might point to great heaps of letters on my desk, to be answered if I ever get time to do it. I do wish, from the bottom of my heart, that it were possible for me to look up every tangle in business, and answer it at length; but I fear, dear friends, you will have to accept the will for the deed for a good part of it. Now comes the real trouble. Our friend probably asked for a sample of the Arizona honey, and we sent, as we supposed, honest samples. In that carload from Arizona there were something like 500 sixty-pound cans of honey, nailed up two in a box. The association that shipped the honey received it from ten or twelve different individuals. These individuals graded it themselves, and marked the grade and quality on the outside of the boxes. When we first received it we opened quite a large number of cans, and the grading seemed to be so honest and square that we accepted the labels on the outside, without going to the tremendous task of opening every one of these 250 boxes and sampling the honey. It turned out afterward, however, that we should have saved a deal of trouble by doing just that very thing. Somebody among the ten or twelve shippers was either lacking in conscience, or else was so heedless that his offense was about as bad. This is nothing very strange. You can hardly go into any community and find ten or a dozen bee-keepers, or even farmers, who would not, if they had a chance, work off a poor grade of their product so as to get a high-grade price for it. In fact, almost *all* of us have done more or less of this kind of work until we learned by experience that it would not do. Oh that I could impress upon the minds of the readers of Gleanings the fact that honesty *is* the best policy! We need men now in this present age—and, oh there is such a *sad* need of them!—who will put up any thing for market in such a way that a commission man or the purchaser who gets them will know from the *character of the man* that there is no need of breaking open packages to see if they are honest throughout. Friend Terry has built up his reputation, not only on potatoes, but also on strawberries, by this kind of honesty; and he has been exhorting the whole nation, through his writings, and through his institute work, to do just this very thing. Dear friends, just think of it! Friend Shelton says he would not have had his reputation injured as it has been, for a *hundred dollars*, and no doubt he is pretty nearly right about it. This damage must be made good by some one—that is, some satisfactory arrangement must be made with these customers. If the man who shipped poor-grade honey will not do it, it falls upon *us*. It is like the story I told a few weeks ago, about writing Breckenridge County for Bracken County, only that was an innocent blunder, perhaps, and this is the consequence—at least it would seem so—of a *deliberate* attempt to defraud.

We are now coming to something that cuts close. Friend S., we want you to tell us what initials were on those boxes of bad honey. And, by the way, I think the time is coming when every package of honey must have the address on it of the producer, and the producer must stand responsible for the truthfulness of the label outside. To do this is going to make a good deal of trouble in raking up these transactions; and especially getting them into print is going to hurt somebody's feelings terribly, perhaps. But it is the only true and sure foundation upon which to build up a great trade in our industry. This great trade has already got a good start, and people are getting to have confidence; and we as bee-keepers must *fight* for this confidence, and must fight for our integrity, as we would fight for the American flag.* It is the only solid rock on which any industry can be built up. The butter and cheese business have had to go through just this kind of work, and they are going through it now, and it is the same way with those who produce and handle eggs. There is no way but the honest way. The patriarch Job say:

"As God liveth, who hath taken away my judgment; and the Almighty who hath vexed my soul; all the while my breath is in me, and the spirit of God is in my nostrils, *my lips shall not speak wickedness, nor my tongue utter deceit.*"—(Job 27:2—4.)

The italics in the above text are my own; and the only course for us is to rise up in our strength and in our might, and say with good old Job, "My lips shall not speak wickedness, nor my tongue utter deceit," not even though bags of money that we sadly need are held out as a bribe for just a little bit of deception.

□ We will try to give the outcome of our settlement with friend S., in a later number.

Now, dear friends, it is not the extracted-honey men who are guilty. The same kind of work comes up more or less in crating comb honey. Very likely it is carelessness, or setting somebody to work to help pack the honey who does not know any better than to put nice clean white sections on the *outside*, and the dark ones *inside*. Here are some letters below that tell you how it works in our great cities:

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*A verse of my favorite hymn occurs to me here:

Are there no foes for me to face?
Must I not stem the flood?
Is this vile world a friend to grace,
To help me on to God?

The first one was received with check for honey sold on commission.

Mr. Root:—We hand you herewith check covering sales of your last shipment of honey to us. We had bad luck with part of it. We made shipment to the country of a lot, and it was refused on account of being black. We ordered it returned. In the trip it was badly broken up, and we sustained heavy loss on it from leakage and waste. This last end was what kept us waiting so long. We are now in good shape to handle another shipment for you. One-pound sections are the kind that sell best.

REYNOLDS & WILLIAMS.

Cleveland, O., Nov. 19, 1890.

The above lot of honey was a part of the carload received from friend Ball. As it looked very nice when taken from the car, and seemed to be in excellent order, therefore we were greatly astonished, and wrote immediately to know what the commission men meant by calling it "black." I confess that we were somewhat *stirred up* about it, as a great part of the carload had already been sold at good prices, and no complaints. The letter below explains:

Mr. Root:—We are very sorry to have you feel as your letter indicates in regard to the honey receipts and report of sales. The writer saw the honey that was returned, and it was black on the inside sections while the outer ones were clear and white. We had several shipments returned which delayed remittance, and the causes for returning to us were just, as the honey was as we have stated.

Cleveland, O., Nov. 21. REYNOLDS & WILLIAMS.

There you have it, friends. From what I know of friend Ball I can not believe that he *himself* put up his honey, or knew that it was put up with unsightly sections *inside* and the nice white ones *outside;* and I confess that I was quite loth to believe that he had intrusted anybody with packing it for him that would do such a thing. In all great markets it is well known that the man who packs his produce so as to make it show well on the outside, while inside it is poor and unsightly, it sure to get a wide berth on any future shipments. It *kills* any man's reputation. You remember what Jesus said about the scribes and Pharisees:

"Ye make clean the outside of the cup and of the platter, but within they are full of extortion and excess."

In fact, I had looked at the honey, and had seen several cases opened, and had taken great comfort in thinking that we had a *whole carload* that was just as good *clear through* as it was outside. But I at once hastened to our men who put the honey up for shipment, and something like the following conversation occurred:

"Mr. W., how many cases of that carload of comb honey have you *overhauled* so as to get a look at the *inside* sections as well as the *outside* ones?"

"Oh! quite a few—I don't know exactly how many. Where a case was leaking a little we overhauled it and got out the broken section and put a sound one in its place."

"Well, did you find any cases of honey that were dark and bad looking inside, with the outside sections clean and white?"

"Yes, there were some put up in just that way, and I showed it to Mr. C., and he replied that the dark appearance was only the result of leaving it too long on the hive—that the *quality* was just as good as the other, and he thought it would not be necessary to go to the trouble of overhauling and repacking."

So the commission man was right, after all—at least, our honey *was* open to the charge that the best sections were put on the outside. Mr. C. said afterward that this was not the case with a great many, certainly, for he saw badly stained sections right out against the glass, indicating that the packer put at least *some* of them in just as they happened to come.

Now, a great many think this is a small matter, any way. But I tell you, it is a matter of *tremendous* import to honey-producer and honey-dealer. The thing has come up so many times that our grocers are sore and sensitive; and just as soon as they begin to open a package of goods, and find it put up with the best *outside*, they get indignant. Who can blame them? Had this dark or stained honey been put by itself, and sold at what it would bring, it would have saved condemning, and selling at a low figure, perhaps quite a quantity of first-class white honey. I know there are some who say that the honey that has been longest on the hive is the best ripened, and is therefore *not* inferior; but when it comes to Thanksgiving, or Christmas, circumstances demand that he who wants something nice-looking should have it. Our daughter Constance has just come home from Oberlin to spend Thanksgiving. Like the average schoolgirl of 18, she has a big appetite for every thing belonging to home, especially for fruits and dainties. On my way home from the union prayer-meeting I stepped in at one of our leading groceries to get something to please "Blue Eyes." As I looked over their display, what sort of goods do you suppose I picked out? Why, like everybody else I wanted something handsome-looking—something that would make the whole household lift up their hands in admiration. Of course, I wanted it good too. But I was ready to pay—shall I say double price?—to have something that looked perfect to the eye. What I mean is, some perfect and faultless specimen of *dame Nature's* handiwork. I paid 20 cents per lb. for some beautiful clusters of white grapes—that is, just a few—etc. Now, dear bee-keeping friends, do you see what the great outside world demands of us, and wants us to do? The beautiful little text, "Thinketh no evil," is making big headway in the hearts of our people; and when we give way to this foolish, selfish longing for the thirty pieces of silver, as Judas did, we are not only killing ourselves spiritually, but we are also killing ourselves *financially.* In fact, we are doing just the thing to spoil for ever any possible chance of getting hold of any *silver* at all; and, besides that, if we are professors of religion we are tempting this great outside world to say, "There, there. Not any more of that, if you please. If *that* is Christianity, I think I would rather buy my stuff of somebody who does not make any profession." What shall it profit a man if he gain the whole world and lose his own soul? But you see he *does not* gain the world either. The *world* is lost and the *soul* is lost—*every thing* is lost. This is Thanksgiving day, and ten o'clock in the morning. May the Lord help us all to shake off this fearful nightmare of selfishness that seems so bound to settle down upon us unless we are holding fast to the strong arm of Him who went about doing good, and who went through the world and lived a human life, but who came out victorious, a model and a pattern of all that is unselfish. *He* "pleased not himself."

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

GARDENING IN DECEMBER.

It is now the day before Thanksgiving. We have beautiful Grand Rapids lettuce in the open ground, still unharmed by frost. And this reminds me that the *Rural New-Yorker* makes a suggestion that is new to me, and possibly is of considerable value to the market-gardener;

namely, that lettuce, radishes, etc., may be grown nearly to maturity in cold-frames. Just before severe weather comes on, cover them with glass and straw mats, and thus keep them fit for use during a great portion of the winter. This can be done much cheaper than to go to the expense of heating, to grow them in the winter time. I am quite sure, from what experience I have had in the line, that it can be managed. Just now we have a fine crop of beets, from the size of hens' eggs down. They are as yet uninjured by the frost, but will soon be injured without protection. One of our boys suggests that we gather them, cut the tops off, and transplant them to cold-frames or greenhouses. A beet is a great thing to start to grow, as you know. When they make nice new tops, sell them off for bunch beets during the winter time.

Cauliflower can, without question, be kept in cold-frames, the same as lettuce. Celery is so commonly kept all through the winter months, even into February and March, that I have hardly thought that any instruction was needed. As so many inquire, however, I will tell you what I know about it.

KEEPING CELERY DURING THE WINTER.

If you have only a little, put it into your cellar in a box without top or bottom. Let this box stand directly on the cellar floor. An earth floor is best. The box may be as long as you choose, but it should not be more than a foot or 18 inches wide. If you get too much celery in one body it is apt to rot. Dig your celery, leaving considerable dirt on the roots. Pull off most of the outside leaves, and pack it in the box as closely as possible. Your cellar should have plenty of doors and windows, so that you can keep the temperature pretty close to freezing. Celery will stand considerable frost in the open ground, but not very much in the cellar. In its winter repository, two things are to be guarded against—rotting and freezing. Rotting is the worst trouble. Keeping it cool, and giving it plenty of air, is the remedy. If your cellar is so dry that the celery is likely to wilt, and get like shoestrings, you may moisten the roots; but do not put any water on the tops. It will make it rot. Sometimes a little cavity is made in the cellar bottom, say two or three inches deep, and water is poured into this cavity. This will keep it growing some if your cellar is not too cold; but if it grows much in the cellar, it is likely to become hollow and stringy. Now, putting up celery on a large scale is just like the above, only, instead of the box, you can set up boards a foot wide and 16 feet long. Keep them up from the cellar bottom by means of pieces of 2x4 scantling laid at right angles with the long boards. This is to let enough air circulate to prevent heating. When you want the celery to blanch—that is, if it is not blanched when you gather it—shut off the light and raise the temperature until the celery is just right for the table. Last winter we had some beautiful celery wintered in a vacated pig-pen. Now, do not smile nor turn up your nose. The pigpen is under shelter, and is a part of our tool-house. We cleaned it out nice and clean, and dug down perhaps a foot below the surface of the ground. After it was packed away as above, between long boards a foot wide, we covered the whole top of the pig-pen with the same kind of one-foot boards, and over these boards we put stable manure enough to keep the frost out. A good deal of dirt adhered to the celery, and the dirt in the bottom of the pig-pen made it so rich that it grew some all winter, especially when the heat of the manure above it raised the temperature enough. The celery, when put away, was quite green, and not blanched enough for use. The variety is the New Rose. The stalks were a bright rose red when put away. In January the darkness and warmth had bleached it so that it was received by everybody as *white* celery with an occasional rose tint to it: and it was the most crisp and delicious celery I ever tasted in my life. This year we have a cellar under our new factory, about 40x100 feet, and the door is so large that a horse with a mud-boat can draw a load of celery right where it is to be packed between the boards. A low sled or mud-boat is perhaps as handy as any thing to draw the celery from the field. Put it right close to the rows, so that the men who pry out the stalks with tile spades can set them right on the boat. A box should be placed on the boat, made of boards, perhaps a foot high. A common stone-boat will do, but it draws rather harder than the right kind of sled.

Celery *can* be wintered outdoors in our locality in average winters; but as it is risky, it is not generally to be recommended. If, however, you think you will want to use it all by Christmas, you can manage it this way: Bank it up clear to the very tips, then make a trough of boards. Invert this over the row, and cover with coarse strawy manure. This will keep it till Christmas safely, and many times even till spring. The objection is, the amount of labor required for so small a quantity of celery at the usual distance apart of planting. To save labor you can dig a trench a foot wide, and, say, two feet deep. Put a tile in the bottom of the trench, to make sure that it does not get filled with water. Now pack in your celery, just as before directed, in the cellar. Earth up; put an inverted trough of boards on top to keep off the rain; put on your strawy manure, and it will answer about as well as a cellar. The only difficulty is, that you can not very well get at it during very severe weather in the winter. It is much handier, as you will readily see, when stored in the cellar, as first directed; for in this case you can put it on the market very quickly whenever a good price is offered. A combination of the two plans is what is called a "celery-house." This is built anywhere outdoors, where the ground is so thoroughly drained, or stands in such shape that water can not get inside. Dig down two feet, throwing the dirt outside so as to form walls. Put in your celery; cover with any kind of rough cheap boards, or whatever is handiest, leaving just room enough to stand up and go between the rows of celery. Have a thermometer or thermometers hung in different parts of the structure, and go around often with a lantern, and see that the temperature does not get below the freezing-point. If it were not for getting around among the stuff with a lantern, to see how it is keeping, I would have a roof within two feet of the tops of the celery. With such a low structure there is less difficulty in keeping the frost out; and if you are young and small, so you can afford to stoop down and crawl through the avenues, you may make it low. Pack your celery in rows so that you can reach any of it from some one of the paths, to see whether it is freezing or rotting, and put a board as directed, so the rows of celery shall not be much more than a foot from one board to the next. Unless you do this it will fall over and make you trouble. It will pay you to do this work decently and in order; and if you plan it beforehand according to the length of your lumber, there need be no cutting or sawing, and the structure can be put up very quickly. You can make it so as to be permanent, or you can pile your lumber up under shelter during the summer time. If you are going to make a permanent structure, however, I rather think I would have it in the form of a

cellar under some building, providing you have plenty of doors and windows to give it lots of air if it threatens to rot on your hands.

With the cheap structure you can remove the few boards when ventilation is needed; but be sure that your roof, whatever it is, never permits water to drop through on to the tops of your celery; and be sure that you do not leave the ventilator open at any time when rain or snow may get in, for any kind of wet or dampness on the tops when in its winter repository will be sure to make it heat and rot.

In our locality we put away our celery for winter, about Thanksgiving time.

OUR CONDENSED SEED CATALOGUE.

Very few additions will be made to our catalogue of last year. The Breadstone turnip we mentioned in our last issue continues to be a favorite with the wagon. E. C. Green, of the Ohio Experiment Station, says, in our last issue, that he hardly sees how he can get along without the Golden Wax bean. We have found the Kidney Wax to have larger and handsomer pods, and it is much less liable to rust. We shall perhaps be obliged to catalogue a pole bean aside from the limas, and I think we shall use the Dutch Caseknife on the strength of friend Green's recommendation. For the same reason we shall include Crosby's Egyptian beet. We dislike to drop the Golden Self-blanching celery, but our trade this season has given the White Plume the preference. On the strength of friend Green's recommendation we shall use the Spanish King onion (Maule's Prize-taker) for starting onions in the greenhouse. The White Victoria is too poor a keeper. Have the friends at the Experiment Station tried the Breadstone turnip? Fottler's Brunswick cabbage we shall take for a late one. Our friend Jennie Wilson speaks so highly of the Shoepeg corn that I am inclined to think we shall have to adopt it. It is certainly equal to any in quality, and there is so much corn and so little cob that one really gets more for his money than with most other kinds of sweet corn.

Prof. Green, of the Ohio Experiment Station, speaks of it as follows:

In GLEANINGS for Nov. 15, A. Jennie Wilson recommends Shoepeg sweet corn. This is the same as Ne Plus Ultra, or Banana. It is the most meaty and delicious corn that I ever tasted. The ears are not large, hence it might not be suitable for market; but it is unsurpassed for home use. I give the different names by which it is known, so that it may be recognized in the different catalogues. W. J. GREEN.
Columbus, O., Nov. 18, 1890.

In regard to the cantaloupe melons, we have tested Miller's Cream, and we thought that, if anything, is was a little ahead of the Emerald Gem; but rather than have so many kinds we thought we must drop it. As friend Lipscomb, however (on page 790), says it is a much *heavier cropper* than the Emerald Gem, I do not know but we had better substitute Miller's Cream. Can any of the friends corroborate friend Lipscomb's statement?

CONVENTION NOTICES.

The annual meeting of the Huron, Tuscola, and Sanilac Co. Bee-keepers' Association will be held at Bad Axe Court house, Huron Co., Mich., on Wed., Dec. 10, 1890. All are invited.
Kilmanagh, Mich. J. G. KUNDINGER.

The fall meeting of the Carolina Bee-keepers' Association will be held in the Public Hall, Pineville, N. C., Dec. 18, 19. A good programme is prepared. All come, with full report.
Derita, N. C. N. P. LYLES, Sec.

EDITORIAL.

My righteousness I hold fast, and will not let it go. JOB. 27:6.

WE have at this date 10,190 subscribers.

PUTTING BEES INTO THE CELLAR.

THE weather at this date, Nov. 26, seems to warrant us in putting our bees in the cellar. We are carrying them in this afternoon, and piling them up *a la* Boardman, without bottom-boards. Dr. Miller put his in two weeks ago, but he is in a colder locality than we.

THANKSGIVING TIME FOR TILLERS OF THE SOIL.

IN times past we have heard a good deal in regard to hard times for the poor farmer. In fact, there has been so much said about the farmers not having a fair chance (I presume the term "farmers" would also include market-gardeners), that it began to remind me of the old women's-rights question, and I didn't know but we should have to have a farmers'-rights organization. In fact, I presume we have two or three already; but I know so little of politics that I haven't even kept posted. Well, I want to say a word in regard to high prices on farmers' produce at this present time. I don't feel bad about it. In fact, I rather rejoice when I hear that any kind of farm produce is bringing a good price, and I rather enjoy paying it; but I mean, mind you, when everybody else has to pay it as well as myself. At present here in Medina we are paying 50 cts. a bushel for oats; 30 for corn in the ear; a dollar a bushel for nice potatoes; $2.00 a bushel for choice apples, etc. Not only are prices good, but every thing seems to be taken up as fast as it comes into market. For several years I have felt sorry for the boys in our vicinity who raised popcorn. They brought nice lots of it to town, and I tried buying it for a while just to encourage them a little; but as we didn't get rid of it I had to give it up. Just now, however, there is great demand for popcorn, and none to be had. Our enterprising friend, H. R. Wright, of Albany, N. Y., sends out letters asking if anybody knows of any popcorn for sale anywhere. Friend W. buys and sells popcorn by the carload, and his printed letter-head makes quite a little circular in regard to the "popcorn business." Well, now, that is really encouraging. If there is any thing I do enjoy, it is seeing the boys get a good price, cash down, for something they have raised. When I find a boy who raises popcorn or chickens or honey or strawberries or onions, I just like to take that boy by the hand and claim relationship; and when our great nation of people get to where they can offer the boys encouragement in the way of good prices, we are on the road to better things. I allude especially to the boys that go out in the fields and work for themselves under God's clear sky, instead of hanging around the factories, begging for a chance to be "*bossed*" by somebody.

THE AMERICAN BEE JOUNRAL.

On the first of next year the old *American Bee Journal* is to change its size to about that of these pages, and each number will contain 32 pages. For a weekly bee-journal this is a big undertaking; but Newman & Son are equal to the task.

THE AMERICAN BEE-KEEPER.

This is the title of a new bee-journal, to be issued Jan. 1, 1891, and to be published by the W. T. Falconer Manufacturing Co., Jamestown, N. Y. It is to be a monthly periodical of 16 pages. The cover page and prospectus are before us, and we have no doubt that they will get out a first-class journal.

SPACERS FOR FRAMES.

Every now and then we receive a spacing-device for holding ordinary frames at fixed distances. They are complicated, and would make the hive cost anywhere from 10 to 50 cents extra, to say nothing of the length of time it would take to manipulate them. In suggesting these improvements it is well to bear in mind, first, their expense; second, their convenience. No Yankee can tolerate expensive devices, no matter how good they may be otherwise.

LIFE-MEMBERSHIP IN THE N. A. B. K. A.

In order to become life-members in this association, spoken of elsewhere in these columns, all you have to do is to pay $10.00 to the secretary; and when your name is voted upon and accepted, you will be a life-member, and no more *annual* dues to pay. Any one thoroughly interested in the success of the society (and that success means a great deal to our industry in general) can not do better than to become a life-member. If he be a straightforward man there will be no doubt that he will be accepted as a member.

FLAT COVERS.

In going over our colonies in Dovetailed hives, preparatory to putting on the outside cases, we noticed that the clusters in some of the hives had settled down almost to the entrance, seemingly to avoid proximity to the cover. On other hives of the same kind they are quite close to the cover; and inspection showed that the former had been recently opened—that is, the propolis attachments making the cover air-tight, had been broken so that the air would flow over their backs, and consequently they went down toward the entrance. Those colonies from which the covers had not been removed for some time, and which had been sealed down with propolis, were close to the cover. The same thing was seen in all our colonies in chaff hives with chaff cushions on top. Our apiarist, Mr. Spafford, thinks he would like to have the Dovetailed cover with side pieces, so that they would telescope over the body. There might be an advantage in this, but it makes the covers more difficult to handle during the honey season; and when they are sealed down with propolis it is a pretty hard matter to pry them up, unless there are cleats on the hives, and we don't exactly want cleats yet. The moral is, to get the colonies fed up as early as possible in flat-cover hives, so that the bees may have time to seal the covers down air-tight. Simplicity covers are no better in this respect.

EXAGGERATION IN DESCRIBING GOODS IN CATALOGUES.

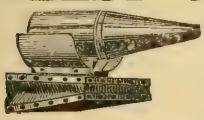
This matter is brought to my mind just now by a description of lemons in a weekly price list. There are three grades. They are designated, first, "Extra Fancy;" second, "Fancy;" and third, "Extra Choice." The "Extra Choice" is the poorest grade. I think I can remember the time when the poorest lemons used to be styled "Fair." Better ones were classed as "Choice." Pretty soon we had to say "Extra Choice" to get any real good ones. When the "Extra Choice" got to be only ordinary, somebody started the word "Fancy," and for a while we could be sure of getting the best in the market by ordering "Fancy." Now, however, we have to say "Extra Fancy" if we want the best; and if we happen to need the ordinary for some special purpose, they must be designated "Extra Choice."* What a sad, sad state of affairs! But somebody says, "What are you going to do about it? If you call your things exactly what they are, nobody will purchase. We are really obliged to do as others do." I heard a merchant in California say, when an exasperated customer gave him a blowing-up because his pound rolls of butter weighed only ¾, that the only way to live and get along was to give ¾, just as everybody else does. I suggested that he weigh them up by the pound, and tell every customer that they were ¾-lb. rolls. He said nobody would buy them, because all the rest in the whole city of San Diego called ¾ of a pound a pound. Now, my friends, all this talk and this theory is false. It is not true. It *will* take you some little time to build up a business by telling the honest truth, *no doubt;* but when people get to know you, and to understand that you give full weight, and that, when you say "choice," you mean better than the average in the market, your fortune is made. There is no spread-eagle advertisement that can come *anywhere near* the *simple honest* truth, to build up business. Use moderate, simple, truthful, honest words. Make this your foundation, and all mankind will soon flock around you. If others act dishonestly, the field for you is all the wider and all the broader; and I have sometimes thought that, in some departments of trade, there is an almost *unexplored region* for the man who is actually and truly seeking "*first* the kingdom of God and his righteousness."

* When "Extra Fancy" loses its "saltness," what words shall we take next?

FACTS! FACTS! FACTS!

The Bee-Keepers' Directory, 125 pages, price $1 00. **Thirty Years Among the Bees,** 82 pages, price 50 cts. **The Am. Apiculturist,** one year, price 75 cts. The above paper and books contain all the information necessary to produce honey by tons, and to rear queens by thousands. All mailed for **$1.25.** Sample copies of Apiculturist free. Address **HENRY ALLEY, Wenham, Mass.**

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	$2.00
Conqueror "	3 "	"	1 75
Large "	2½ "	"	1 50
Extra (wide shield)	2 "	"	1 25
Plain (narrow ")	2 "	"	1 00
Little Wonder,	1¾ "	"	65
Uncapping Knife			1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Neb.; G. L. Tinker, New Philadelphia, O., E. Kretchmer, Red Oak, Ia.; P. L. Viallon, Bayou Goula, La., Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1517 Blake St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; **E. L. Goold & Co., Brantford, Ont., Can.;** R. H. Schmidt & Co., New London, Wis.; J. Stauffer & Sons, Nappanee, Ind.; Berlin Fruit-Box Co., Berlin Heights, O.; E. R. Newcomb, Pleasant Valley, N. Y.; L. Hanssen, Davenport, Ia.; C. Theilman, Theilmanton, Minn.; G. K. Hubbard, Fort Wayne, Ind.; T. H. Strickler, Solomon City, Kan.; E. C. Eaglesfield, Berlin, Wis., Walter S. Pouder, Indianapolis, Ind., E. T. Abbott, St. Joseph, Mo., I. D. Lewis & Son, Hiawatha, Kan., and numerous other dealers.

LANGSTROTH on the HONEY-BEE,

REVISED.

The Book for Beginners, the Most Complete Text-Book on the Subject in the English Language.

Bee-veils of Imported Material, Smokers, Sections, Etc.

Circular with advice to beginners, samples of foundation, etc., free. Send your address on a postal to

4tfdb **CHAS. DADANT & SON,**
HAMILTON, HANCOCK CO., ILLINOIS.

☞In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY - EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c.

PERFECTION COLD - BLAST SMOKERS.

Apply to *CHAS. F. MUTH & SON, Cincinnati, Ohio.*

P. S.—Send 10-cent stamp for "Practical Hints to Bee-keepers." ☞*Mention Gleanings.* 1tfdb

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, $3.50 per 1000; 2000 to 5000, $3.00 per 1000. Write for special prices on larger quantities. No. 2 sections at $2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
16-tfdb Successors to B. J. Miller & Co.,
Nappanee, Ind.

FOR SALE.—Pure-bred Poland China pigs at $3.00 each, delivered at depot here.
Address **CHAS. F. MUTH,**
Morristown, Shelby Co., Ind

A BIG BARGAIN FOR $1.00.

SPECIAL CROPS, one year, $1.00. MONTREAL FAMILY HERALD AND STAR (weekly), $1.00. GOLDEN CENSOR (Rockford, Ill., weekly), $1.25.

All of above one full year for $1 00. Special Crops and either one of the others for 50 cts. This offer is good until Dec. 26 Renewals accepted same as new subs. Address **C. M. GOODSPEED,**
Skaneateles, N. Y.

☞In responding to this advertisement mention GLEANINGS.

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FOR LIGHT AND DARK FERRETS,

and pure Poland-China Swine, address

N. A. KNAPP,
Rochester, Lorain Co., O.

☞In responding to this advertisement mention GLEANINGS.

"HANDLING BEES." Price 8 Cts.

A chapter from "The Hive and Honey Bee, Revised," treating of taming and handling bees; just the thing for beginners. Circular, with advice to beginners, samples of foundation, etc., free.

5tfdb **CHAS. DADANT & SON,**
Hamilton, Hancock Co., Illinois.

☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

Please mention this paper.

Wants or Exchange Department.

WANTED.—To exchange forest trees, for strawberry-plants, grapevines, and all kinds of small fruit-trees or offers. W. G. McLENDON, Gaines' Landing, Chicot Co., Ark.

WANTED.—To exchange Italian bees in L. hives for beagle hounds, or will exchange fox-hounds for beagles. J. B. MITCHELL, 23-24d Hawkinsville, Pulaski Co., Ga.

WANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

WANTED.—To correspond with parties who wish to exchange beeswax for supplies. GEO. RALL, Frenchville, Trem. Co., Wis.

WANTED.—Apicultural offers in exchange for plain and fancy job printing. 23-24d C. W. DAYTON, Clinton, Rock Co., Wis.

WANTED.—To exchange one 6x9 self-inking press, with type, for 10-inch fdn. mill and wax-extractor, or best offers; also a 6-inch fdn.- mill, for wax. 23-24d L. L. ISENHOWER, Reading, Pa.

WANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made. EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

WANTED.—Situation by a young man (20) living in Eastern Pa., who desires to learn apiculture with a first-class apiarist. A1 references furnished. Wages no consideration. Address DANIEL S. HAHN, South Easton, Northampton Co., Pa.

WANTED.—A few pairs of ferrets and 500 lbs. No. 1 extracted honey. Will exchange pure Bronze turkeys. CHAS. McCLAVE, New London, O.

WANTED.—To exchange a new foot-power saw for honey. Send for a descriptive circular. W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange fine Stainer violin, cost $25, for a good 12-guage, breech-loading, double-barreled shotgun. Also home-made saw-table, mandrel, and one Simmonds rip-saw—have cut out a large amount of lumber with it—will exchange for bees, honey, or offers. D. H. TWEEDY, Dillonvale, Jeff. Co., O.

WANTED.—To exchange bee-supplies for printing, to the amount of about $20.00. 24d WM. H. BRIGHT, Mazeppa, Minn.

WANTED.—To exchange a single harness, or light double road harness, sleighs, one a light one, or two-seated buggy wagon, for a small planer, swing saw, and a power press for punching iron. GEO. E. KNOX, Ballston Spa, N. Y.

WANTED.—To exchange Perfect Hatcher, 176 eggs, cost $75.00; and brooder, 300 chicks, cost $38.00; been used at fairs a little, for Italian or hybrid bees. ELIZABETH DIMICK, Burns, Steuben Co., N. Y.

To the Bee-Keepers of Missouri.

I am requested by the secretary of the Missouri State Board of Agriculture to furnish him for publication a report of the bee-keeping interests of Missouri, and I ask every bee-keeper of Missouri to assist me in this matter by sending me a report of how many colonies of bees they had in the spring of 1890, and how many in the fall, how much comb and how much extracted honey they obtained, and how much wax. I would suggest you also give in the report of all your neighbors or persons that you know of keeping bees. Let me urge every bee-keeper to send in his report and assist in this matter. There are to be 4000 of the agricultural report printed and distributed, and we now have an excellent chance to bring the bee-keeping interests before the people of the State. J. W. ROUSE, Sec. Missouri State Bee-Keepers' Ass'n. Mexico, Mo., Dec. 1, 1890.

NEW SPACERS for L. frames; accurate, $\frac{13}{16}$, 92 to the pound. Fully practicable for frames in use. Prices, 1 to 5 lbs at 16c; 5 to 10 lbs. at 15c; 10 to 25 lbs. at 14c. Send stamp for sample. Address G. L. TINKER, New Philadelphia, O. 24-1 2d

Undoubtedly the Largest Plant in the West,

Built exclusively for the manufacture of Apiarian Supplies. **One and One-Half Acres Floor Space.** We sell as **Cheap as the Cheapest,** and our goods are as **Good as the Best.** Parties will do well to **write us** for estimates on large orders. We will send you our catalogue for **your name on a postal card.** Address **LEAHY MFG. CO., Higginsville, Mo.**

☞In responding to this advertisement mention GLEANINGS.

15 STRONG Colonies of bees (Italian, Cyprian, and Hybrids) for sale very cheap. REV. R. W. LEWIS, Waxahachie, Ellis Co., Tex. Offered only 30 days.

GREAT BIG BRAHMAS.

Grandest fowl on earth for the farmer, for market and eggs. Good stock for sale now at farmers' prices. Catalogue free. Address **F. H. PETTS, Warsaw, Mo.**

1890 ITALIAN QUEENS FOR BUSINESS. 18tfdb W. H. LAWS, Lavaca, Ark.

FLORIDA NEWSPAPERS FREE.

We will send you the South Florida Home, six weeks, on trial, for ten cents, and insert your name in our Mailing List (free of charge) which will bring you hundreds of sample copies of Florida Newspapers, Maps, Circulars, etc.; and if you want to visit, or locate in Florida, you can very easily decide where to go, and how to get there, and you will be well pleased with the small investment of ten cents. Stamps taken. Address SOUTH FLA. HOME, St. Petersburg, Fla.

FOR SALE.—Two 32 gal. barrels of basswood honey at 9 cts. per pound, or I will take $32.00 per bbl., free on board cars. Package free. Barrels will weigh 360 lbs. net; honey is very fine. H. H. OVERMYER, Lindsey, Sandusky Co., O.

SPECIAL NOTICES.

ADVANCE ON WIRE NETTING.

Remember that only a few days remain before the advance price on wire netting takes effect. All orders received here by the 24th of December will be filled at the old price.

ENAMELED CLOTH ADVANCED.

After the catalogues, which we have sent out, were printed we received notice of an advance in the price of enamel cloth, and you will please note the following correction in price: 25 cts. per yard; $2.75 per piece of 12 yards. Kindly mark this change in the catalogue you received before it slips your mind.

OUR HONEY QUOTATIONS.

Just after our December 1 number went to press, we received from the West the two cars of honey we had been expecting. One car of very nice white sage honey, in new cans and cases, is from J. F. McIntyre. This is fully equal to the former car from Mercer, and, being in new cans and cases, is more desirable on that account. In the car from Arizona, we have about 4000 lbs. alfalfa comb honey in 1-lb. sections, and about 1000 lbs. in 2-lb. sections,

as well as over 200 cases of two 60-lb. cans of alfalfa extracted honey. This is a good-flavored honey, and light amber color. There is a little second-grade amber color among the comb honey. This looks some worse than it really is, because the cappings are soaked. Some of the extracted is second grade. In order to work this honey off rapidly, and get it out of the way of our other business, we make the following low prices:

White sage,	1 to 3 cans,	60 lbs. each,	11c;	4 to 6 cans, 10.
" "	3 to 6 cases,	2 cans	" 9½;	6 to 10 cases, 9.
" "	10 cases or more,		8½,	cents per lb.
Light amber Arizona,		1c per lb. less than white sage		
Amber	"	1½	" "	"
No. 2 amber	"	2	" "	"
Choice white comb,	1-lbs.,	1 to 3	cases,	20c per lb.
"	"	" 3 to 5	"	19 "
"	"	" 5 to 10	"	18 "
"	"	" 10 or more	"	17½ "
"	"	" 20	" "	17 "
Good	"	"	1c less than choice.	
Fair	"	"	2c " "	"
Dark	"	"	3c " "	"

2-lb. sections, 2c per lb. less than 1-lb. of same grade.

Most of the comb is in 24-lb. cases, 48-lb. cases count two toward obtaining the quantity price.

2-lb. sections are 64 lbs. to case.

We shall be pleased to mail samples of extracted honey; and when you order, if you will return the sample or give the mark on it we will guarantee to send you honey equal to the sample. We can not send free samples of comb honey; and for the extracted, unless you have a purchase in view, send 5 cents to cover cost of sample. Those who get samples with the view of placing an order, of course will not be charged with them.

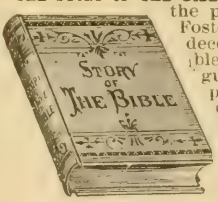
BOOKS FOR CHRISTMAS PRESENTS

We have purchased only one new book this year specially for the holidays. It is.

AN ILLUSTRATED PILGRIM'S PROGRESS. A nice book for a small sum. A few Sundays ago I took a notion to read the Pilgrim's Progress over again. I got it down and tried to see how many of the references to Bible texts I could repeat from the knowledge of the Bible I have gained since I read the Pilgrim's Progress when I was a child. I was very much pleased to find out, with a Bible right at hand, that I could repeat most of them—at least in substance. The book I was using had perhaps half a dozen illustrations in it. I finally said aloud to my wife, "Oh, I do wish that somebody would give us a Pilgrim's Progress full of pictures from beginning to end!" I want a nice large book that would be full of attraction to every child, and with pictures of such a nature that they would encourage wholesome truth and Bible precepts, even to those who can not read. Well, now, it is a little funny, that, almost the very next day, the book I had been longing for was put into my hands. It is from the Charles Foster Publishing Co., Philadelphia, where the Story of the Bible comes from. The book is 9½ inches long, 7¼ wide, and 1¼ thick. It has 425 pages and 175 illustrations. Ever so many, to whom I have shown it, pronounce it a $2.00 or a $2.50 book; but by buying a very large number of them at a time we can sell them to you for only 75 cents. The book is so heavy, however, that it can not be sent by mail for less than 20 cents, making 95 cents by mail, postpaid. The covers are most beautifully embellished in scarlet and gold, and many of the pictures are worth to me alone the price of the book. Among them I would mention Christian and Pliable in the Slough of Despond; Mr. Worldly Wiseman; Giant Despair, etc. But the sweetest and best of them all to me, is Prudence talking to the boys A single glance at the book by anybody, when you mention the insignificent price for so beautiful a volume, will make him hold up his hands in astonishment. We send a book as a premium for three subscriptions at $1.00 each; or send us $1.75 and we will send you GLEANINGS for 1891 and the book, postpaid. If you want something extra nice for a present, we can send you one with gilt edges for 25 cents more.

The following books we have left over from our premium list for last year. They are all, however, in nice order, with the exception of those mentioned otherwise, where a liberal reduction is made in consequence. They are as follows:

THE STORY OF THE BIBLE. This wonderful book is the production of Rev. Charles Foster, of Philadelphia, lately deceased. It is the whole Bible reproduced in simple language, making a book of 700 pages, illustrated with 274 engravings. It is so plainly and pleasantly written that grown people as well as children, will hardly want to lay it down. In the hard passages in the Bible, difficult to understand, it makes a commentary that will be thankfully received by some others besides children. Indeed, it has proven so simple, reliable, and helpful, that it has been reprinted in many foreign languages. It is a well made book, printed on fine paper. Regular agent's price is $1.50. Our price is $1.00; 15 cents extra if sent by mail, or given free for 2 new names and one renewal, with $3.00, and 15c extra to pay postage.



STORY OF BIBLE ANIMALS. This is another book, same size and style as Story of the Bible—704 pages, 300 illustrations. It is a description of the habits and uses of every living creature mentioned in the Scriptures, with explanation of passages in the Old and New Testaments in which reference is made to them; by J. G. Wood, author of "Illustrated Natural History." If you are interested in natural history you will be delighted with this work. Children should read it to arouse their interest, and make them more familiar with the Book of books, by becoming more familiar with its animals. Regular agent's price, $1.50. Our price is $1.00. By mail, 15 cents extra, or given free for two new subscriptions and your own renewal, with $3.00, and 15 cents to pay postage.

FABLES AND ALL GODIES; or, New Lights on Old Paths. This is a most magnificent book by Chas. Foster, the author of the Story of the Bible It measures 8 by 9½ inches, by 1⅝ inches thick, and weighs 4 lbs. It is printed on very heavy toned paper, with heavy gilt edges; is bound in light-blue cloth, embossed in black and gold; contains 512 pages and 350 original illustrations. The subject-matter is a series of fables and allegories, each giving a most wholesome moral lesson that very few of us, old or young, do not need. This book would be an ornament on the center-table in any home; and if read and pondered, and its lessons put into practice, many hearts would become more lovely, and many homes more pleasant and beautiful. The lessons taught are made much more pungent by the pictures accompanying, as in many cases the story is more than half told in the pictures. So large and nice-looking a book is rarely sold by agents for less than $4.00. Our price is $1.50. By mail, 32 cents extra, or given for 6 subscriptions, with $6.00, and 32 cents to pay postage, if sent by mail. Will sell two for $2.8', three for $4.00; five or more, at $1.25 each.

BIBLE PICTURES, and What They Teach Us. This is a very handsome book by the same author, Chas. Foster. It contains 315 large illustrations from the Old and New Testaments, with brief descriptions. It contains 232 pages, 8x10, with embossed cloth cover, title in gilt, printed on heavy paper. The book weighs 2½ lbs., and takes 20 cents to mail it. It will make an excellent Christmas or birthday present for a child. It is written chiefly to instruct the children, and should be in every home. Regular agent's price, $1.50. Our price, $1.00. By mail, 20 cents extra, or given free for two new names and your own renewal for GLEANINGS, with $3.00, and 20 cents to pay postage, if sent by mail. We have a few copies of these, also four copies of Story of the Bible, with covers somewhat damaged by water, which we will sell at half price.

FIRST STEPS FOR LITTLE FEET. This is by the same author, and is a collection of simple Bible stories intended more especially for younger learners. Every child should have one of these to read; 328 pages, and 140 illustrations. Very nicely printed, and bound in cloth, title in gilt. Price 50 cents each; 2 for 75 cents. Given free postpaid for 2 subscriptions, with $2.00.

CONVENTION NOTICES.

The annual meeting of the Ontario Bee-keepers' Association will be held in the city of St. Catharines Jan. 7 and 8, 1891. All interested are invited W. COUSE, Sec., Streetsville, Ont.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey*.—There is not the volume of trade usual at this season; yet prices are without material change since last quoted. Best lots of white honey in one-pound sections bring 17@18; brown and dark grades are not so steady, and sell at 14@16; and where an entire lot of dark honey can be closed out these prices are shaded. The extracted product of this locality, and that of the Western States and Territories, brings 7@8. *Beeswax*, 27.
Dec. 8. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

ALBANY.—*Honey*.—The honey market is quiet; but stock is light and prices well sustained. We are selling, white, 16@20c; mixed, 14@15c. Buckwheat 13@14c. Extracted, white, 8½@10; amber, 7@8; dark, 6@6½. H. R. WRIGHT,
Dec. 6. Albany, N. Y.

CINCINNATI.—*Honey*.—There is a good demand for all kinds of honey. Arrivals are fair of all but comb honey, and Southern extracted. Small lots only of each are arriving and disposed of on arrival. We quote: Choice comb honey nominal at 16@18. Extracted honey, 5½@8 on arrival. *Beeswax*.—There is a good demand at 24@26 on arrival, for good to choice yellow. CHAS. F. MUTH & SON,
Dec. 8. Cincinnati, Ohio.

KANSAS CITY.—*Honey*.—Fancy white one-pound comb, 18c; fair to good, 17c; dark, one-pound, 14@15; two-pound comb, white, 15@16c; dark, 13@14. Extracted, white, 7c; dark, 5@6.
Dec. 8. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

ST. LOUIS.—*Honey*.—Demand continues good for comb and extracted. The former is scarce. We quote white-clover comb, 19; dark do., 15@16. Extracted, from 5½@6. *Beeswax*, prime, 25c.
Dec. 8. D. G. TUTT GRO. CO.,
St. Louis, Mo,

BOSTON.—*Honey*.—Fancy white one-pound combs selling at 19@20c; fair to good, 17@18. No 2-lb. combs in this market. Buckwheat or off-colored honey not wanted at any price. Extracted selling at 7½@8½. No beeswax on hand. Demand good.
BLAKE & RIPLEY,
Dec. 10. Boston, Mass.

DETROIT.—*Honey*.—Comb honey in one-pound sections in good demand at 15@17c. Extracted, 8@9. *Beeswax*, in good demand, at 27@28c. M. H. HUNT.
Dec. 11. Bell Branch, Mich.

ALBANY.—*Honey*.—The demand has been more brisk the past ten days; especially for extracted; and we have closed out about all we had on hand. We think the stock of comb honey is now nearly all on the market, and do not anticipate any decline in prices. We quote: White comb honey, 17@18; mixed, 15@16; buckwheat, 12@14. Extracted, light, 9@10; dark, 7@8. CHAS. MCCULLOCH & CO.,
Dec. 9. 339 Broadway, Albany, N. Y.

NEW YORK.—*Honey*.—Fancy white, 1-lb. sections, 16@18; fair to good, 1-lb. sections, 14@15; fancy white, 2-lb. sections, 15@16; fair to good, 2-lb. sections, 13@14; fancy buckwheat, 1-lb. sections, 12@13; fancy buckwheat, 2-lb. sections, 12@13; extracted clover and basswood, 9@10; extracted buckwheat, 7@8. The above are about the prices these goods are bringing to-day. Of course, after the holidays, we expect a lull in the honey market as usual, and expect no great demand for it for two or three weeks after New Years. The market is pretty well cleaned up in 1 and 2 lb. sections of fancy clover and 2-lb. sections of buckwheat, as you will see by the prices these goods are bringing. On the whole we think the honey producers have got good prices this season.
CHAS. ISRAEL & BRO.,
Dec. 11. 110 Hudson St., N. Y.

FOR SALE.—Comb and extracted honey. Address O. H. HYATT, Shenandoah, Ia.

FOR SALE.—Choice honey in sections, cans, and C. pails. Send for price list to OLIVER FOSTER,
12-tfdb. Mt. Vernon, Ia.

WANTED.—Southern honey. Will pay 5½c cash on arrival for good Southern honey.
CHAS. F. MUTH & SON,
22-23-24-1-d Cincinnati, O.

WANTED.—One or two thousand pounds of nice comb honey. Write, giving amount on hand and price wanted. A. D. ELLINGWOOD, Berlin Falls, N. H.
17fdb

FOR SALE.—50,000 lbs. of extra fine sage honey in 60-lb. tin cans. Also two carloads of light amber honey, for sale at 6c per lb., f. o. b.
L. E. MERCER & SONS, Ventura, Ventura Co., Cal.
19tfdb

WANTED.—White comb and extracted honey; state price, package, etc. B. WALKER, 17tfdb
Capac, Mich., or Prairie du Chien, Wis.

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JACOB T. TIMPE,
Grand Ledge, Mich.

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DR. C. L. TINKER,
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Vol. XVIII. **DEC. 15, 1890.** **No. 24.**

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QUEENS STINGING WORKERS.

TWO QUEENS IN A HIVE; THE YOUNG ONE SUPERSEDED FIRST.

Several years ago I saw a young queen, that had just hatched, grasp hold of a worker in a kind of awkward embrace; and the worker, which had previously appeared all right, was dead when the queen let go. Heretofore I never dared to report this case, being so firm in the belief that a queen never stings any bee except a queen, and never seeing any exception reported, that I thought there might have been some mistake in my observation.

A second case of the same kind having occurred this summer, which my assistant also witnessed, I feel safe in saying that, in rare instances, a young queen may sting a worker.

During the past summer I experimented somewhat largely with queen-cells and virgin queens. I wanted to decrease the chances for swarming by means of young queens, for I believe it is pretty generally conceded that a colony, with a young queen of the current year, is less likely to swarm than one with an older queen. I read in Doolittle's excellent book, that it is dangerous to allow a young queen to hatch in a hive where there was an old queen, as the old queen would be destroyed if the colony did not swarm. I said to myself, "Now I have it. I'll get a young queen into the hive before there is danger of swarming. She'll supersede the old queen, and very likely there will be no swarming that season. Certainly there will be none for a good many days after the young queen takes possession, and, if necessary, I can again supersede *her* before she is old enough to swarm. I believe I've struck it at last." Then I made a lot of Doolittle's cell-protectors, put a sealed queen-cell in each, and put in each hive to be operated on a cell thus protected. The cell was put between two combs, just under the top-bars, a place being made for it in the combs by pressing with the ends of my fingers. As soon as it was time for the cells to hatch, or perhaps sooner, I went with no little interest to find what progress was made. I found every cell destroyed by the bees. I had put the cells in horizontally; the protectors were pretty large for the cells, and when the bees pushed against the point of the cell it fell back into the protector, thus letting the bees inside gnaw into the side of the cell. I said, "All right. I've lost my cells, but I've learned something." So I tried another lot, and put them in perpendicularly, point down. Again I examined with eagerness, and found some of the cells intact and some open. Were they torn open by the bees, or had a queen hatched out? I couldn't tell. Finally I came to one which made me call out to my assistant, who was equally interested, "Come quick, Em. See that?" To which she replied, "Sure as any thing. There's the hinged cap. A queen has hatched out of that cell, wherever she is now."

We looked but a short time, and found the young queen. A little to our disappointment, we also found the old queen. "Let's take her away," said Emma, "and then this colony's all right."

"No," said I, "I want to follow this out to the end. Let them both stay. We're sure the two queens are here now, and we'll see whether the old queen will be destroyed and replaced by the young one."

Subsequent examinations revealed the fact that, in some way, the young queen had disappeared. Others turned out the same way. The cells showed that a queen had hatched out, but later examinations failed to denote her continued presence. Out of 55, all failed with but a single exception. In that case the protected cell was given May 28, and 16 days later the young queen was clipped. A number of very young queens were also placed directly on the combs, and met the same fate. Whether I did something different from Doolittle, or whether the poor season had something to do with it, I don't know.

I think that, if the old queen were removed, the protected cell would be respected; but, for that matter, so would a cell without the protector.

"PULLED" QUEENS.

It is pretty generally known, that a very young queen may be put into a hive, and usually allowed to remain unchallenged, *if* no old queen is there. It may not be so generally known that queens may differ no little in age at time of hatching. A single cell in a queenless hive will hatch out a white soft-looking thing, not able to fly for some time. In a hive having sent forth a prime swarm, at the time of sending forth the second swarm there will usually be found a number of young queens in cells, some of them immature, some of them like the white soft things already mentioned, and some of them ready to fly. The same state of affairs will be found in a strong colony from which the queen has been removed, although it is questioned whether the queens are as good. When one of my colonies with a clipped queen swarms and returns, and the queen is lost or removed, then I find a goodly number of cells, the quality of which will be questioned by no one. For a few years I have made a practice of saving such queens, at least all that I could find use for, if the stock suited me. Please bear in mind, that the white-looking ones are old enough to use, and I suspect that they are much easier to introduce than those that have been imprisoned by the bees in their cells till they are strong enough to fly. I do not wait for any of these young queens to hatch out. I take out a frame with cells, take hold of the end of a cell with the nails of my thumb and finger, and pull off the cell. If the queen is one of the oldest, the cap of the cell will pull off, and, after a little hesitation, the queen will emerge. If the queen is younger, the whole cell will pull off, and a little pulling apart at the larger end of the cell will set the queen free. All the cells are thus taken out of the hive, any queens too young, or with immature wings, thrown away, and the rest put in cages. These are then given to any colony or nucleus needing them, dropping them directly among the bees, with no preparation or caution whatever. These "pulled" queens, as we call them, are, I think, just as good as if each one had hatched out of its own accord; and when such cells are plentiful, a large number can be had in a very short time. Mr. A. I. Root was here one day when we pulled a lot, and seemed quite interested. C. C. Miller.

Marengo, Ill., Nov. 13.

I, too, friend M., have seen queens, once in a great while, sting a worker-bee; but it usually happened under the influence of excitement or alarm, so that she could hardly have been said to be in a normal state. I have introduced young queens into a hive containing an old queen; but my experience has been about like yours. Yes, I remember about the "pulled" queens; but there were so many things to see when I made you that visit that it is not any wonder that I failed to mention some of them.

WINTER REPOSITORIES, ETC.

DOOLITTLE SUGGESTS SOME THINGS TO AVOID.

On pages 816 and 817 I find a description of a winter repository as given by Harry Lathrop. There is not the least doubt that it will winter bees splendidly; and if Bro. L. can stand the racket of renewing it as often as may be needed, and take the risk of a "cave in" on the bees while in the repository some winter, should he not renew it when it should be, he is all right as he is. My first repository, or "mud hut," as such repositories were then called, was built on almost exactly the same plan as his; but it lasted only three years so as to be safe.

The trouble seems to be, that, during winter, the wood part of it becomes saturated with the moisture arising from the bees; and as, in the summer months, it does not seem to dry out as it should, just the right condition comes about to cause the wood to decay quickly. Wood that would otherwise last for years will decay in three years so that there is no safety in it, according to my experience, as I have three times had to throw all the dirt out of my bee-cellar by its caving in when I did not expect it. After the first one rotted out I built the side-walls of mason work, on which was made a regular roof of rafters and boards, the same as a roof is made for any building, less the shingles. The dry dirt was now placed on this roof to the depth of three feet, and a cover put over the whole, so that the dirt never got wet at all; yet at the end of three years I could stick the blade of my pocket-knife through any of the boards. I now put in extra sets of rafters so that none of these rafters were more than eight inches apart. This held the earth all right till the rafters gave out, as an eight-inch space was too small for the earth to fall through after it was packed as it was by this time, especially as the old rotted boards helped a little to keep it in place. When the rafters gave out I renewed the roof again; but this latter one did not last as well as the first, so I decided to cover the top with flagging.

As I gave a full description of the cellar a year or two ago in Gleanings, together with illustrations, I will not describe it further at this time, more than to say that the repository proper is 24 feet long, 7 feet wide, and 6 feet deep, inside measure. As I could get no flagstone thick enough to hold the weight of dirt if they were laid directly across the wall, I procured them a little over four feet long and set them up the same as rafters would be set up, resting the foot of each on the side-walls, while the tops rested against each other, the same as rafters would. This gave me the height of 8 feet in the center of the cellar, and I am very glad now that I could not get the whole stone thick enough; for had I been able to do so I should have had my hives sopping wet all the while.

No one, who has not had experience, would believe the quantity of moisture which will arise from a lot of bees in a cellar. The bees have been in the cellar but about 20 days; yet these same flagstones, which at that time were as dry as could be, have drops of water coursing down their under surface to the top of the wall, so that it stands in little puddles there. What effect this will have on the bees before spring, I am unable to say; but I fear no trouble as long as this moisture can be kept from the hives, and the temperature kept at from 43° to 45°, the same as it has formerly been.

In using flagging for covering I find that the stone must be at least three inches thick. The stone to cover this cellar cost me $25.00, delivered. Besides those which were intended for the cover I had some thinner ones to use as battens for the cracks between the stones, as all of the covering stone were not dressed at the sides. After the stone were delivered I found it was necessary to use one of them over the threefold doorway, so I used one of the stone intended for a batten in the main roof, and on top of this I put another one of the battens, thinking that the two, which were somewhat

thick r than one of the others, would hold all right. After I had the whole thing completed I found that the upper one of these stones had broken in the middle, but still I thought the under one would hold. This was not to be, however, for at the end of two weeks the other broke; and as four of the other stone were more or less connected with it, they came down also. This caused a third of the whole to cave in, which made a lot of trouble and much extra work, besides some fears that the whole stone might not hold. In a week's time I had it back again as good as ever; and as it has been over two months now since it was completed the last time, I think there will be no further trouble from its caving in. If not, this cellar will be here years after I am dead and gone, and for all time, so far as I can see, unless some one tears it down.

WAX-EXTRACTORS.

Now, friend Ernest Root, if I understand your description of how you make the Doolittle solar wax-extractor aright, and I think I do, when putting the description and the engraving together you have spoiled one of the *most valuable* features of it. If I am right, your glass-frame drops down ⅞ inch into the rabbets made in the sides of the extractor to receive it. This necessitates the lifting of the frame up bodily in order to remove it, or to do any of the manipulating of wax or scraps in putting in or removing, while all that I do with mine is to lift one end of the sash a little by taking hold of No. 11 and slide it a little to the front or back: slide it back and on again; No. 4 and the extractor making a track for it to slide upon. The glass sash or frame is not removed from my extractor in one manipulation out of twenty. Well, why not remove it? Because it is more work, for one thing; but the main reason is, that in all times of scarcity the bees will collect in swarms about this extractor in less than a minute after the cover is raised so as to let out the perfume of the wax; and every bee which is shut in the extractor is dead in a twinkling. With my sash I can slide it under the hovering bees, and manipulate it quicker also, which will be impossible to do with a sash that must be lifted with every manipulation. After I learned to slide the sash I did not murder one bee where I did hundreds before. G. M. DOOLITTLE.

Borodino, N. Y., Dec. 1.

I suppose, friend D., you still adhere to the plan of having no ventilators in your bee-cellar. When you spoke of the water condensing on the inside of the stones, it occurred to me that the right amount of ventilation would remove all this water. But then we come right on to a difficulty in all such structures. It is this: Whenever we have a warm spell so that the outside air is *warmer* than the air, stones, etc., in your cellar, if your ventilators are open, moisture will be deposited over every thing. A few days ago our new machine-shop was filled with machinery ready to start, before any heat had been put into the building. The weather suddenly changed from freezing to a warm, damp south wind. The tools and walls of the new shop were a good deal colder than this damp air. The consequence was, every time we opened a door or window, great drops of water appeared on all the metal work; and before we could stop it our whole lot of nice machinery was covered with rust. A lot of boys went to work with waste and oil, but it did us a great deal of damage. Gregory, in his squash-book, speaks of the same thing in his house for keeping squashes, and he directs to shut up the building air-tight (or as near as you can) whenever there is a damp air outside, of a *higher* temperature than the air inside. This necessitates careful watching and prompt opening and closing of ventilators. It seems to me, however, that this is next to impossible with a bee-cellar; therefore I would do as you do—shut the whole thing up as tight as I could and let it alone. And I am not sure but I would do the same thing with potatoes and other vegetables in a cellar. When the cellar is *too warm*, however, I would advise opening the doors and windows long enough for it to cool off to the desired point. But I would do this only during very dry or freezing weather. As soon as it begins to freeze in the open air, the surplus moisture is practically done away with. Now, I suspect one of the troubles with sub-earth ventilation is in this line. Air that comes up through an underground passage will, as a matter of course, be filled with moisture; and it would be just the condition to make every thing rot and decay that it comes in contact with, just as it made your boards and rafters rot and decay. In cold-storage buildings they have an arrangement to take all the moisture out of the air so as to have no dampness on the walls and fruits and vegetables; but it is a somewhat complicated and expensive arrangement. Putting a stove into the bee-cellar, and drying it off, will, of course, fix it; and had we set up some stoves in our machine-shop, and warmed up the walls and the metal work promptly, it would have saved the rusting, and probably paid for the expense of putting up the stoves or something equivalent. I have taken some space to go over this, because it is an important matter; and much damage is often done in the way I have indicated. It is just like the "sweat" on the outside of a pitcher that contains cold water from the well, or ice water. Every little while somebody lifts up his hands in astonishment because the contents of a cellar or certain room are dripping wet; and most people regard it as one of the strange mysteries. The whole thing, however, is very simple, and easy to manage, if we recollect that dew is always deposited copiously when warm damp air strikes any cold body.

In regard to the wax-extractor, Ernest replies as follows:

Yes, friend D., the sides of the new wax-extractor are rabbeted out ⅞ inch deep. The rim for holding the glass is 1⅛ inches deep, leaving a projection of ¼ inch to get hold of, above the sides or ends of the box. Perhaps I do not quite understand, but I think the cover can be slid back in the same way that you speak of, so as to leave an opening as large or as small as may be desired for putting in bits of wax. We tried to make it just as near like yours as pos-

sible, and yet simplify its manner of construction with reference to machinery.

KODAK VIEWS OFF THE BICYCLE.

AT MR. ELWOOD'S.

In the last issue I said that I had concluded my Notes of Travel. Well, I have not altogether yet. You will remember I took along

ONE OF MR. ELWOOD'S OUT-APIARIES.

my Kodak, and at various places in my notes I promised that I would, *later*, give reproductions of some of the scenes and of some of the things it was my pleasure to see. I took one hundred pictures, and carried the whole apparatus in a small leathern case, 7x3½x4, under my bicycle seat. In fact, the little camera and the case were so small that it might easily be taken for a tool-box, and I was quite willing that that impression should prevail, because I did not wish my valuable collection to be stolen or tampered with. The whole hundred pictures are now mounted, and are good ones, and I assure you it is a pleasure to haul them over and show them to my friends. They form the best kind of a permanent record of my visit at various places. For instance, when I stopped at a place I was not obliged to pull out my note-book and take extensive memoranda of hives and appurtenances. No, I just took out the little Kodak and let it "wink," as it were, at the object of which I wished to retain a permanent impression, and it did its work well, although I am sorry to say that I can not reproduce in half-tone the pictures as nice as they appear in the photographs.

You will remember I took a number of views while at Mr. Elwood's. One in particular was of a hive as he uses it. If you will look back you will see that it was taken under somewhat adverse circumstances. The bees were stinging, and were making things rather lively for Mr. Elwood and myself. The photograph shows that the air was full of the mad little rascals, although the half-tone reproduction does not present them very distinctly. For the present I pass this by, as it will appear along with some forthcoming papers from Mr. Elwood's pen.

I have referred, a number of times, to the hills about Mr. Elwood's apiaries. I present you one view above.

The hills in the rear do not appear to be very high; but the fact is, they rise one above another. The first range rather hides those behind it in the picture.

Proximity to hills or mountains is doubtless a grand thing for the bees. In a good many cases they form a magnificent protection against the prevailing winds, and then they prolong perceptibly the honey-season. As the basswood opens up, the bees will gather from the valleys. Then as the season advances, instead of its stopping as it does with us in about ten days, the flight of the bees gradually goes upward, upward, upward, upward, until they reach the summit of the topmost hill, when the basswood season ends. Although I have heard this stated many times before, this was an exceedingly interesting point to me, as I looked at the hills covered with basswoods.

Around this particular yard there was a single strand of barbed wire. Said I, "What is this for?"

"To keep calves out," said Mr. Elwood, jocosely.

On a former occasion some of these young ruminants had been meandering around among the hives, and had tipped a few over. Very likely they were suddenly put to flight by some of the hybrids, and took the shortest cut out of the yard; and if a hive happened to be in their way, it did not matter much to them, even if they tipped some of them over. As all his bees were in closed-end frames, no serious result followed; for no calf can make the frames, if they are the closed-end, shuck about.

AT WESLEY DIBBLE'S.

I told you, on page 748, Oct. 15, about Mr. Dibble's automatic swarming-arrangement, and mentioned the fact of my having taken some Kodak views. Well, here is one.

WESLEY DIBBLE'S AUTOMATIC SWARMING-DEVICE READY FOR THE SWARM.

Mr. Dibble uses hives very similar to our Dovetailed. When a hive is about to send forth a swarm he places a twin hive beside it, about seven or eight inches off. Connecting the two very near the entrance is a tube about 1¼ or 1½ inches in diameter, made of perforated zinc. This tube, or course, is let into holes in the outside of each hive, near the front of the hive, so as to form communication with the two. The entrances are closed with a strip of perforated zinc. When a swarm issues it comes out and fills the air in the regulation way. The queen comes to the perforated zinc at the entrance; and on finding egress denied her perambulates back and forth until she discovers the before-

mentioned hole in the side of the hive. She passes through this; and on vainly trying to get through the perforated tube she enters the other hive. By this time the bees are beginning to return, and, not finding her in the parent hive, a few of the stragglers discover her presence in the next hive, and call their companions to them. The engraving shows the perforated zinc tube connecting the two hives, and I think it will make the matter sufficiently plain.

Mr. Dibble told me that he successfully hived swarms automatically last year and this in outapiaries, and the invention enabled him to dispense with hired help. So far as he was concerned, he was orginal in its use, having worked along in a quiet way by himself.

The next engraving shows nicely a Kodak view of his little smoker-house, or shed. It is not large enough for a man to enter, as you see. His son, a young man, stands by its side, so that you can get its relative height. In the lower part is put his smoker wood, if I remember correctly. In the upper part are smokers and other tools for work among the bees. A hinged door closes the thing tight from the weather. It is situated within convenient access from any part of the apiary.

We have had tool-boxes in the shape of Simplicity hives stacked up in our apiary for years. The objection to them was, that honey-knives, wood, and smokers, would be all mixed together in the bottom. With the arrangement above there is a convenient shelf, so that the tools can be separated from the fuel. Mr. Dibble regarded it as a valuable adjunct to an apiary, and I have no doubt that many of our friends can profit by the suggestion by setting one up and trying it.

I told you some time ago how Mr. Doolittle and I together went through his yard examining into his queen-rearing colonies. And you will remember that he showed me quite a number of frames having his artificial cells nicely completed and ready to be removed and put into hives. You will remember, too, that we examined them at random, and I know that Mr.

DIBBLE'S SMOKER AND TOOL HOUSE.

Doolittle did not pick out his best lot of cells when my Kodak took a shot. The view next presented, I think, is the first one I took. When they were photographed he was hardly aware of what I had done; and yet here it is, preserved as a permanent record of the everyday queen-rearing in Mr. Doolittle's yard.

These half-tone engravings are a faithful reproduction of a photograph, just as nature actually was at the time of taking the picture. You will observe there are 7 complete cells hanging to the top-bar, as it were, in the center of one of Mr. Doolittle's frames. Two others the bees had failed to build out; but by putting in more larvæ they would ultimately finish them up.

DOOLITTLE'S ARTIFICIAL QUEEN-CELLS ILLUSTRATED.

No one can deny that Mr. Doolittle's method of queen-rearing is a success in his hands; and if in his, why not in all? The reproduction does not show the cells as distinctly as the photograph, but there they are, just as Nature completed them from the artificial bases.

ERNEST.

INVENTIVE PROGRESS, ESPECIALLY IN THE LINE OF ELECTRICITY.

SOME BRIGHT THOUGHTS AS WELL AS PRACTICAL SUGGESTIONS FROM FRIEND HEDDON.

Friend Root:—I was not a little interested in your recent editorial regarding the rapid strides in electrical invention. As I have been for some time, and am at present, making electricity a study, I thought of a few words I should like to say to you and your readers regarding just such schemes as friends Dadant speak to you about, regarding utilizing the immense water-power of the Mississippi River, Niagara Falls, and other places. I want to say to you, that the cost of electrical apparatus, and wire for conveying the current long distances, is such that water-power of ever so great capacity is of no value whatever, unless it be located very close to the spot where the power is utilized. Very large insulated copper wires are enormously expensive; and unless such are used, even with the highest-tension systems, the loss, or "drop," as it is called, in electrical parlance, becomes so great that the utilizing of water-power at long range is impractical. Many of the best electricians of the country with whom I have come in contact, tell me that all of the electrical inventions of the present time are merely mechanical improvements here and there, and that no great innovation may be looked for, in any direction which they can

conceive, except it be the converting of heat from the combustion of fuel directly into electricity without having to go around through steam with engines and dynamos. If this can be done, and they say the signs of the times are favorable, then we shall have the splendid arc and incandescent lights at a price even lower than the cost of gas or kerosene.

Four of us procured a franchise, and installed in this city an incandescent plant, about a year ago; and after nearly a year's experience we have not yet discovered any mistake in our choice of system and apparatus. Of course, we visited numerous plants before selecting. Of the seven bids from seven different companies, we accepted the highest-priced of all, a price nearly double the lowest, and feel that we did just right, as the dearest proved to be the cheapest in the end. We light our streets with 32-candle-power incandescent lights; and for the resident part of any village or small city like our own, ornamented with well-developed shade-trees, the incandescent light beats the arc light more than two to one. Of course, the arc light is larger and brighter, but the incandescent is so much cheaper that we can afford nearly ten times as many of them at the same cost. We can place them low enough so that there is no sidewalk in the city on which you could not see your jack-knife lying, or tell what time it was by your watch, in any spot or place on our streets, the "darkest night that ever blew."

Our citizens laughed at us when we put in the incandescent lights, but now they are all more than satisfied, and can see the wisdom of the choice of our city council. All of our best business houses are lighted with the incandescent lights, compared with which the best kerosene lamp looks like a phosphorescent beetle, or "a convalescent white bean," as Bill Nye would say. We use the high-tension alternating-current system, with the Westinghouse apparatus (the best in the world); and just here it may surprise many of your readers when I tell you that there is no doubt in my mind but that George Westinghouse is a much greater inventor than Thomas A. Edison, not only in all the realm of mechanical inventions, but even those connected with electricity. But this article is long enough. James Heddon.

Dowagiac, Mich., Dec. 2.

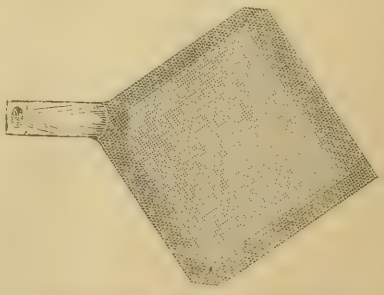
Friend H., we are very greatly obliged to you for the information you give us. From what we know of you, we are not at all surprised to know that you, too, have been attracted by this matter of converting mechanical power into light. Very likely you are correct in regard to transmitting the electric current long distances. We are beginning to see something of it in carrying our wires for electric lighting to different parts of our plant. I, too, have been watching for some great developments in the way of a shorter cut from heat to an electric current.

SHIPPING AND INTRODUCING CAGES.

HOW TO MAKE AN EXCELLENT INTRODUCING-CAGE.

Friend Root:—I have just been sizing up your new Benton shipping-cage, and it meets my hearty approval in every way. With good fresh candy, or, rather, with fresh Good candy, and 20 or 30 bees, it should deliver 95 per cent of all the queens sent to California, in good condition. The introducing feature does not hurt it a particle for shipping, and the party receiving it can use that part or not, as he thinks best. I usually prefer to use some other plan with queens coming from the East, for several reasons. As a rule, the longer a queen has been caged without access to comb, the longer it will be before she commences to lay after being liberated. A queen coming from the East, usually takes from two to three days to get in condition and commence to lay. Before this time she is almost as hard to introduce to a full colony as a virgin, therefore I always introduce her to a few young bees until she commences to lay, and then introduce her to the full colony.

Another reason why I do not use the shipping-cage for introducing is because the bees often have so much of the candy eaten out that the queen would be liberated in a few hours; in which case if the reigning queen had just been removed, the new queen would surely be killed. Those objections do not apply to queens shipped a short distance, because the queen would be ready to lay almost as soon as liberated, and the bees would have very little of the candy eaten out. I believe a colony of bees are in the best condition to have a strange queen liberated among them when they have been queenless long enough to have a capped queen-cell from three to five days; they seem to think the queen has come out of one of the capped cells, and it is all right. Of course, the queen should be caged in the hive one or two days before the bees liberate her, to get the scent of the hive. She should be caged on the comb while the bees are eating their way in, so when they break into the cage they will find her in a normal condition, depositing eggs. The cage I use for this purpose is a simple affair. I take a piece of wire cloth 5½ inches square, cut little pieces ¾ of an inch square out of each corner, and bend the four sides at right angles, making a box 4 inches square and ¾ inch deep. Into one corner of this box I fasten a tube of wood or tin ½ inch in diameter, and two inches long, which is filled with Good candy, for the bees to eat out and liberate the queen.



M'INTYRE'S INTRODUCING-CAGE.

I use this cage altogether in my apiary, for changing laying queens from one hive to another. I kill my old queens when they are two years old, and introduce young laying queens in their place. My practice is to go to the nucleus with the young laying queen; lift out the comb with the queen on, and press one of these cages into the comb over the queen, and what bees may be around her. Carry this comb to the hive with the old queen; find and kill the old queen, and place the comb with the young queen caged on it in the center of the hive, taking one comb from the hive back to the nucleus. In a week I go and take the cage out and find the young queen laying. When I receive a valuable queen from a distance I liberate her at once on a comb of hatching brood, with

some young bees; and when she commences to lay I introduce her as above. J. F. McINTYRE.
Fillmore, Cal., Oct. 21.

The success of the Benton cage for sending queens across the continent to California has been phenomenal; but within the last few days it has failed to deliver the queen alive. The cages, at our request, were returned, and on inspection we found that the candy had become as hard as a rock; and the poor bees and queen, not being able to use it as food, simply starved to death. The fault, then, after all, was not in the cage, but in the *candy*. We next tried the Manum bee-candy, and that for some other reason did not answer. The cold weather coming on, I rather suspect has had something to do with it; for, during the warmer months of the year, the Good candy has worked. We now rather look to the Morrison candy. The latter, Mr. S. W. Morrison says, works perfectly during all weathers, and is always soft.

We have had large experience in introducing —yes, introducing hundreds every year in our apiaries, and we don't want a colony queenless more than one or two days, at most, for safe introducing. We have the best success with a colony that has hardly had a *chance* to make preparations for a new mother. The point is this: That when those preparations are once begun (cell-starting) they sometimes seem *determined* to carry out their original intentions; and so we prefer to *get the start* of the bees by giving them a new queen before they have time to realize their queenless condition. If *we* wait until cells are capped, the bees are more apt to kill the queen when released. Some good authority, I don't recollect who, now, corroborates this. Still further, when we take out one queen we frequently cage another at the same time. In fact, we generally do so, and never have a failure except when there is a dearth of honey, and the whole apiary is disposed to rob.

Now about your cage. The principle is certainly good. It combines the good principles of the old Peet with the later and more convenient candy method. For introducing alone, I believe it is the best.

It is a big thing to give a queen access to comb just as soon as she reaches her destination, especially for you Californians. E. R.

BEES ON THE ISLAND OF MALTA.

AN INTERESTING LETTER FROM THE ISLAND, FROM ONE OF OUR OLD CORRESPONDENTS IN QUARANTINE.

Dear Mr. Editor:—After a trip of five days by sea we arrived, coming from Jaffa, at the island of Malta. I changed steamers at Port Said at the Mediterranean entrance of the Suez Canal. When we were in sight of Malta, the captain said: "A queer place, this Malta. They have strange notions as to quarantine." And, indeed, it turned out very queer, having no common sense about it. The three cities lie around a number of creeks where a number of men-of-war are stationed. It affords place for many other vessels. Steamships are continually running into the harbor, which is a great coaling station. Our steamship ran into French Creek, conducted by a Maltese pilot. The sanitary officers came on board, and, after examining my papers, marched me (or, rather, rowed me) off into the quarantine, together with the pilot, as having touched the steamer on which I came, the cholera being 300 or 400 miles north of Jaffa. The steamship itself, the passengers, and crew, had a fair bill, and were allowed to land, together with the sanitary officers. I had to sit alone in a room for the next eight days. I was properly fumigated, and robbed of as much money as possible, with the least possible comfort—enough to make a person, traveling for the restoration of his health, to become eventually sick, under the protection of the Great Britons.

THE HONEY, AND HOW THE ISLAND OBTAINED ITS OLD NAME.

Being in the hospital, or lazaretto, a bee, black as jet, fell down before me. I saw that the bees of the island are, if not identical, at least very much like the Tunisians. Melita of the ancients was, very likely, named so by Greek settlers, who changed the name of Ogygia into Melita, now corrupted by the moderns into Malta. *Melita*, very likely, means "the honey-producing," although the constant advance of agriculture has brought apiculture to a low scale. The island is about 60 miles in circumference—12 wide by 20 long. The climate is very favorable in every respect.

At the western end of the island, about Calypso's Grotto, the best honey is produced from the wild thyme, growing more abundantly there than on the rest of the island, whither the bee-keepers all take their hives in summer. Owing to the rocky and treeless East, this part may have been still more beautiful in ages past, for Homer calls it

> A scene where, if a god should cast his sight,
> A god might gaze, and wonder with delight.

But it does not even make a human being wonder with delight now. The poet made Calypso live there. There is a spring, and it might have been nicely fitted out at one time, but none of those groves are to be found there excepting carob-trees, which stand about almost on the bare rock, and supply a very dark-colored honey in spring. Wandering down the hill

> Where bloomy meads with vivid green were crowned,
> And glowing violets threw odors round,

as the same poet says, may, as much as the before-mentioned, have met the eye of the traveler after a weary voyage on a slow-sailing vessel, and coming, perhaps, from the barren shores of Tripoli, landing in the Bay of Melleha, which again derives its name from honey, his fancy made it fit for gods to dwell in. Near by is a dry river-bed, all in rock, covered here and there with carob-trees, called by the natives "Oued-el-asel," a pure Arabic name, denoting the quantity of honey there produced. It is translated "Valley of Honey." A priest told me that, more than 70 years ago, many bees lived there wild, and probably the masses of honey they got there made them give such names. The natives bring the hives here and have them shut up in caves, before which walls are built, with small holes for each colony to go in and out. An iron gate closes the very low entrance. They greatly fear being robbed by such as have a good taste for sweets, and, more, "covet their neighbors' property." The owner of the place gets 5 to 8 pence a hive for his hire during four months.

THE POOR SEASONS IN MALTA.

There are no statistics to give as to how many hives there may be on the whole island. A canon told me there might be about 1000, which in good years may yield an average of 10 lbs. a hive. The season of 1890 seems to have been a failure. The canon, who possesses some 60 hives, which are in his garden on a cape, has had 4 lbs. of honey from the whole lot. He has spent a good deal of money in transferring his hives into Italian-made hives, and has lost a good many swarms, from moths, dwindling, fertile workers, etc., and is now fast transferring them into the Sandringham hives. He reads Italian bee-papers, and takes every thing for granted that these papers say, and follows the same innovations. He has any amount of queen-excluding zinc, sections, feeders, and so forth; has also brought numbers of queens from Italy, a few Cyprians, but he does not believe in one race stinging more or less than another. Another gentleman very satirically remarked to me, "This part of the island, where not less than 200 hives of bees are kept within a radius of a few miles, and no flowers worth talking about, is just good enough for spending one's money in feeding and breeding bees for the pleasure of seeing them flying and working." He, too, had about a dozen colonies in Sandringham hives, and is feeding the bees to give them a fair living. A third gentleman, too, an amateur, who only looks at the busy creatures, took some honey a year ago, but ultimately had to feed back "over and above" what he had previously taken, so now he has concluded to let 'em alone; and, besides, it was very cruel to take away the honey they had so carefully gathered. The above named are foreigners.

THE MALTESE BEE-KEEPER.

The Maltese bee-keeper is quite a different chap. As superstitious as his Oriental relations, he is as far back in bee-keeping as any one else. The hive is made of earthenware, cylindrical, and costs about 8 pence. Its length is nearly 15 inches, and diameter about 10. When this is full he puts another cylinder, about 12 inches long, at the back. As a rule he takes only the honey which is stored in this prolongation, after having blown some smoke on the bees (the smoker is only bovine which he blows into the hive, as they have no smoking-implement). The more timid bee-keeper wears a veil and gloves, while the expert does not. They transport the bees on a car, with plenty of straw to prevent jarring too much. The honey-comb is broken up in small pieces, and put into a receptacle in a room sheltered from bees and sun. A hole at the bottom allows the honey to flow out. This is received in another receptacle, of earthenware, and in this stored away to find its way into the market. The Maltese honey is sold at 6 or 7 pence a pound, while the Sicilian honey, which is worked into confectionery, brings only half the price.

The swarming season is about the month of April; and, according to their notion, "the drones, which they suppose to be hatched out of the queen-cells, compel the swarm to leave the mother hive, and are then either dissipated by the wind or otherwise killed by the bees. Should the bees not kill the drones (which they confound with queens), the swarm is liable to fly off again. The leaders they call 'flowers' (drone-queens) are not the mothers. As soon as the swarm is settled they start building comb, and filling the cells with honey and water. Out of this mixture the young bees issue; but the water must be as clear as crystal, otherwise no bees will hatch out." The bees seem to be great swarmers, for they have from three to five swarms per hive, in good seasons. When any honey is wanting, they feed the bees by putting shallow earthenware plates, filled with honey and syrup, in the back part of the hive.

The hornets are also among the enemies, although it is twenty years since they have been strong enough to destroy any hives. They destroy the hornets by simply burning the nests where they find them. The early rains of this season have destroyed them altogether. Moths are a great nuisance too; but as the natives keep only a few hives, which are closed by only a flat stone at the back, they can at any time look in, without disturbing the bees. Those I saw were very quiet. We did not meddle with them any more than to look at them and take a few bees out of the foremost. The natives are very much afraid, too, of the "evil eye." Some persons are not allowed to look into the interior at all, as the effect of their looking at them would very soon destroy the hive. The death-head moth, too, takes honey, but is killed by the bees as soon as it contrives to enter the hive.

A barren rock, as many call Malta, it is still wonderful how many vegetables are raised, and, indeed, good ones too. They are very laborious, those Maltese which have to depend entirely on commerce. It being a well-situated island in the Mediterranean, between Sicily and Africa, it has a very splendid harbor, or, rather, a number of harbors, into which a number of steamers are continually going and coming, principally as a coaling station, besides the many men-of-war which are either stationed here or call here on their Mediterranean tour.

AN OLD TRADITION CONCERNING PAUL AND THE VIPER.

The Maltese are very religious and superstitious. All the country is covered with churches dedicated to as many saints. They always uncover their heads when passing by a church or shrine. The church of St. John, where all the Grand Masters and Knights of the Templars are buried, is one of the finest and richest churches I have ever seen. St. Paul has many churches, chapels, grottoes, and bays here, in commemoration of the great apostle's shipwreck on the island. There is a curious tradition among the islanders respecting the viper that bit the apostle. They say, "When Paul the apostle was bitten by the viper, and shook it off into the fire without being molested, the inhabitants at once embraced Christianity on that account, and the venomous serpents were changed into harmless ones to this date." It is a fact now, that there are no venomous serpents here in Malta; but I believe there never have been any, as the island of Sicily is void of them. They are two blessed islands as regards this; for when we think how many persons are killed in India yearly by serpents, this may be called a very happy place; nevertheless, I am happy to leave it to-day and bid Malta adieu, feeling a little bit with Lord Byron, who tasted the disagreements of Malta, and very especially, it seems, its quarantine, as he says in his "Farewell to Malta." P. J. Baldensperger.

Valletta, Malta, Nov. 5, 1890.

OUT-APIARIES.

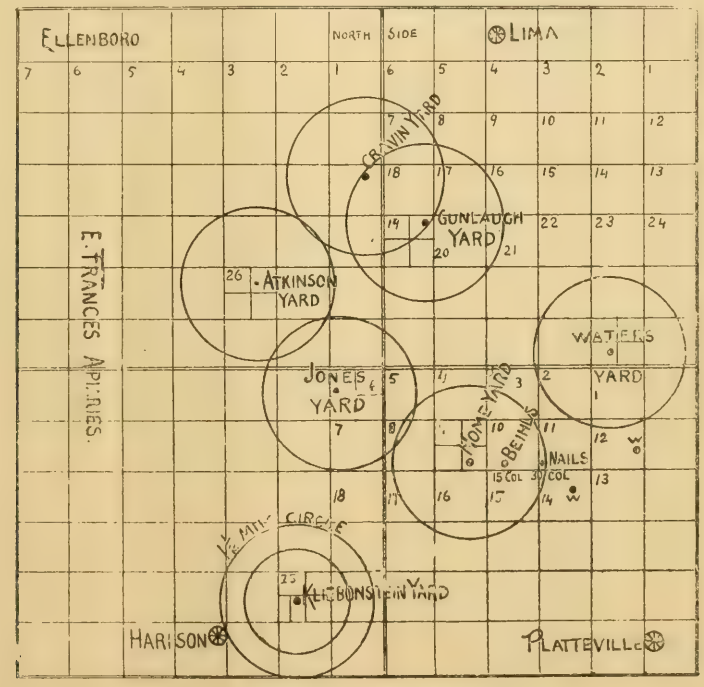
OVERSTOCKING AN APIARY; HOW MANY BEES CAN WE KEEP IN ONE LOCATION WITH PROFIT? SOME VALUABLE SUGGESTIONS FROM E. FRANCE.

This subject has been worked over time and again; still, what do we know about it? I am aware that there is a considerable number who are thinking of starting an out-apiary the coming spring, as their home apiary is becoming

overstocked, or, at least, they think so. Now, so much depends on the amount of honey-producing plants on a given location, it is hard for one to lay down any set rules as to how many bees we can keep, or how far apart we must locate our apiaries to obtain the best results. In good seasons we may be able to get good returns from a crowded pasture. But seasons like the last tell very plainly when we are overstocked—that is, for a poor season.

I have taken pains to make a correct diagram of the territory that we occupy with our bees; and I must say that I was surprised myself when I saw the exact position of each yard. They are clustered together more than I had supposed. The accompanying diagram will show how they stand, and I will give some facts and figures that will make quite an interesting study about setting out out-apiaries and overstocking our pasture. Of course, it is impossible to locate a set of out-apiaries just so far from the home apiary, in a circle, each one in its proper place, just as nicely as we could make it on paper. We have to take such places as we can get, and many of the places that we can get won't do at all, for some reason or other; and when you have six or eight yards planted you will be likely to find, as in our case, some of them badly crowded—too much so for profit.

Atkinson yard. Colonies, spring count.		100
Cravin " " " "		90
Kliebenstein yard " " "		96
Waters " " " "		88
Jones " " " "		80
Gunlauch " " " "		90
Home " " " "		105
No increase to speak of.		649
Honey extracted:		
Atkinson yard	190	
Cravin "	200	
Kliebenstein "	740	
Waters "	497	
Jones "	600	
Gunlauch "	358	
Home "	540	
Total	3125	
Fed back:		
Atkinson yard	000	
Cravin "	336	
Kliebenstein "	000	
Waters "	000	
Jones "	210	
Gunlauch "	486	
Home "	900	
	1932	
Surplus after feeding.		1193



FRANCE'S OUT-APIARIES.

The circles in the diagram are three miles each, or 1½ miles from center to the outside, which is a very short distance for a bee to go in search of honey. If the bees fly three or four miles, as I think they do in poor seasons, it is plain to see how it works in a poor season. The outside apiaries may be getting a fair living, while the inside yards are nearly starving. In first-class seasons, when honey is plentiful everywhere, and very few bees go over one mile, there is enough for all. I here give the number of bees in each yard this spring, the amount of honey taken, and the amount of feeding this fall to put the bees in trim for winter.

Now, notice the Kliebenstein yard, how it is located, away by itself, as for distance, from other yards. It has a great advantage; and then there is plenty of basswood all around it. It has no bees belonging to other parties on its territory. It gave the most honey, no feeding, and is in the best condition of any yard for winter stores.

We will now notice the Atkinson yard. It is pretty well hemmed in on the north and east sides by the other yards, but it has an unlimited field on the west, of good pasture. We took but little honey there, but it is in good condition for winter, without feeding.

Now, away over on the east side we have the Waters yard. It is two miles from basswood, but a splendid white-clover range—plenty of basswood two miles north and east. This yard gave some honey, and required no feeding for winter.

Then there are the Cravin and the Gunlauch yards, each 90 colonies in spring, only 1½ miles apart—too close, with very little basswood north of them. Both of these yards were fed more honey than we took from them. There were a few acres of buckwheat near them that helped them some. The Jones yard did fairly well, considering its surroundings. It had the least number of bees, an abundance of basswood near, and then had eleven acres of buckwheat just over the fence.

We will now notice the home yard. There were 105 colonies. The Jones yard is rather too close. Then there is an apiary of 20 colonies a little over half a mile east, at a point marked Beihls; another apiary 1½ miles east, 30 colonies, marked Nails; another apiary southeast, marked W, about 40 colonies. Another apiary still further to the east, and a little to the north, marked W, about 40 colonies. So you see the home-yard territory is overstocked the worst of all, and had to be fed 360 lbs. more than was taken from them. The home yard has the best clover field of any, but basswood is scarce within two miles. In looking at the diagram, one not acquainted with the ground would likely ask, "Why don't you use that open space southeast of the home yard?" It is all prairie land. Corn and oats don't yield much honey.

We will now just look back to the record of a year of plenty, 1886, and see how the yards averaged up then.

COLONIES, SPRING OF 1886.

Atkinson yard,	72 cols.;	average lbs. per col.,	106
Cravin "	80 "	" " " "	106¼
Kliebenstein "	60 "	" " " "	109
Waters "	72 "	" " " "	107
Gunlauch "	50 "	" " " "	100½
Home "	61 "	" " " "	117

Jones yard not planted then.

FOR 1885.

Atkinson yard,	56 cols.;	average lbs. per col.,	90
Cravin "	53 "	" "	74
Kliebenstein "	46 "	" "	62
Waters "	57 "	" "	57
Gunlauch "	46 "	" "	77½
Home "	62 "	" "	71½

FOR 1884.

Atkinson yard,	51 cols.;	average lbs. per col.,	107
Cravin "	41 "	" "	113
Kliebenstein "	51 "	" "	109
Waters "	41 "	" "	130
Gunlauch "	41 "	" "	106½
Home "	61 "	" "	113½

FOR 1883.

Four yards, average for the whole.....105 lbs.
Number of colonies, 35, 48, 33, 60.

In 1887 we kept no record. It was a very poor season, and we got but little honey.

The year 1884 was a very poor year also.

	Cols. in spring.	Average per col.
Atkinson yard.	76	23
Cravin "	75	20
Kliebenstein "	67	31
Waters "	69	32
Gunlauch "	77	21½
Home "	66	37½

FOR 1889.

	Cols. in spring.	Average per col.
Atkinson yard,	72	40
Waters "	79	40
Kliebenstein "	87	63
Gunlauch yard	79	47
Cravin "	78	49
Whig "	52	40
Home "	84	52

Now, friends, you have the figures and the map of the ground that our bees are on. Study it for yourselves. But if you plant out-apiaries, don't put them less than five miles apart if you can help it. If you are going to keep help at the separate yards, to run the bees, six miles apart is near enough; then, if the pasture is good, you can keep from 100 to 150 colonies in each place. If you go from home with your help every day, then you want to guage the number of colonies so as to work one whole yard in one day; or if you have but three or four apiaries in all, you will have time to work two days in each. But don't go over the roads for less than a full day's work when you get there; and remember, when you are locating an apiary, that, when you are hitched up and on the road, one or two miles further travel will pay you better than to crowd your pasture. Don't overstock your ground. E. France.

Platteville, Wis., Nov., 1889.

Friend F., you have given us an exceedingly valuable communication from experience, and your diagram *is* a study. Your tables are astonishing, and yet it is not more than we should expect; and the effect of overlapping apiaries, in the amount of honey secured, and the amount of feeding required, is very marked. In a poor season, then, it is better to have the colonies further apart. When there is a good flow of nectar, it does not matter if they are nearer together. The suggestions in your concluding paragraph are excellent, and will bear reading several times. Yes, when you are hitched up and on the road, one or two miles further travel pays a great deal better than to crowd pasture. It would pay us all to study our territory carefully, as you have done; and I hope some of our other out-apiary bee-keepers will take the pains to make a diagram and see what *they* learn from it.

FUNGUS GROWTHS IN INSECTS.

PROF. COOK CORRECTS A SENSATIONAL MISSTATEMENT.

Friend Root:—You ask me to comment upon the illustrated article headed "Wooden Caterpillar," to be found in the *Scientific American*, Sept. 27, 1890, page 201. I gladly do so, as it gives a good chance to illustrate how love of the sensational leads to false conclusions and erroneous statements.

The article, in brief, is this: An insect, the oweto, of New Zealand, commences a caterpillar, and ends a vegetable. To quote, "This is a vegetable caterpillar — called by naturalists, *Hipialis virescens*. It is a perfect caterpillar, and when full grown measures three and one-half inches long." To quote again: "Until it is full grown, it conducts itself very much like any other insect; but when fully grown it undergoes a wonderful change. For some inexplicable (sic) reason the spore of a fungus fixes itself directly on its neck, takes root, and grows like a diminutive bullrush, from six to ten inches high, without leaves, and with a dark-brown head."

The caterpillar had previously entered the earth. Many caterpillars—all of the families of

noctuidæ and *geometridæ*—do this to pupate. The fungus grows up to the surface of the earth, and a little above. The root grows into the caterpillar, which it exactly fills in every part, and, without altering its form in any respect, substitutes vegetable for animal tissue. Then both die, and become very hard, but with no change of form. "*The thing is then a wooden caterpillar.*"

"Where the oweto is found, specimens are easily obtained. It is light green when alive, and the Maoris eat it in its soft state. When dry they powder it for use in tattooing." So far this account is not really untrue, but is misleading. One would infer that the animal really transformed into a vegetable. In reality it transforms only as a vegetable transforms into a man when we eat cabbage. The fungus grows from the caterpillar, and obtains its nourishment by taking the substance of the insect. But what is left is no more the insect than the stone of the fossil-fish is the fish itself. But the close of the article is wholly untrue. It is stated that the caterpillar and fungus were made for each other. Yes, just as the lion and the deer which it kills and eats were made for each other. I imagine that the deer tribe would object to the statement, just as I ween the caterpillar that becomes a victim to the fungus would do, could it speak; just as we would object to the remark that we and microbes are made for each other, because microbes kill some people through consumption.

Again, the article states that the caterpillar never exists without the fungus (?), or the fungus without the caterpillar. This is not only untrue, but utterly absurd. If every caterpillar is killed by the fungus, what keeps up the species? The very fact of the existence of the caterpillars shows that some are not attacked and killed by the fungus, but develop into moths which lay eggs and produce more caterpillars. Suppose cholera were always fatal; how absurd it would be to say that people were made for the cholera microbe, and never existed without it! I am not sure that the reverse, in case of this New Zealand fungus and insect, is not true, but I presume it is not. It may be that this special fungus must have for its life and growth this special caterpillar, and will grow in no other soil, if we may so speak; but I doubt whether such is the case. While possibly it can grow only in this species, more likely it will develop from others as well. I send a copy of the figure from the *Scientific American*, that the readers may see how the fungus and victimized caterpillar appear.

THE WOODEN CATERPILLAR.

The explanation of this is easy. The fungus develops, at the brown enlargement, many spores, which take the place of the seeds in these lower vegetables, like puff-balls—the fumes of which are these spores, and like the mushrooms or toadstools. These spores, when they lodge in suitable soil, and are watered by the right conditions, grow. Our toadstools like a damp rich soil. This fungus takes to the tissues of a caterpillar, In its growth it appropriates the substance of the insect, which, as a consequence, dies, so the fungus is a terrible insecticide. Were all the caterpillars attacked, as the article states, all would die and there would be no more food for the fungi. In case they grew on this insect only, as stated in the article, they too would all likewise perish.

We have a case exactly like this, not uncommon here. The common and very destructive white grub, *Lachnosterna fusca*, larva, of the common May or June beetles—often called June bug—is frequently attacked—see figure—by a fungus. This fungus is fatal to the grub, and we may well wish it to become more common, as we should like to see all its hosts—the grubs—destroyed. But, like all vegetation, these fungi must have suitable conditions in which to thrive, and so they often fail either to find the grubs or else to develop when the spore is once planted.

LARVA OF THE JUNE BEETLE.

A. J. Cook.

Agricultural College, Mich., Oct. 15, 1890.

I am very glad indeed to have such able authority as friend Cook come forward and tell us that a statement like the above is not only an untruth, but an absurdity. The world is full of people who are ready to grasp and take in as truth such misleading statements, especially when they come through such a journal as the *Scientific American*. When the thing first came under my eye, I pronounced it at once as absurd as the popular newspaper yarn of a year or two ago, that hens' eggs were being manufactured, so real as to defy detection; and when somebody else a little later said that "these eggs would hatch chickens, but the chickens did not have any feathers on," a few were ready to swallow this down as a real achievement of the present age. Perhaps these latter were younger people who did not give the matter very much thought. We hope the *Scientific American* will be fair enough to its readers to correct the untruth which they have perhaps inadvertently let pass in their journal. The *Scientific American* deserves more credit, perhaps, than any other paper published, for promptly putting down any blunders in mechanics or machinery—the Keeley motor, for instance. But it requires an editor of more than human wisdom and energy to detect like frauds in kindred industries. Perhaps this is why foolish statements in regard to manufactured honey have obtained space in so many journals that are sound and accurate in their own line of work.

LOCAL CONVENTIONS.

A MODEL ASSOCIATION IN E. FRANCE'S NEIGHBORHOOD.

The Southwestern Wisconsin Bee-keepers' convention was held in the apiary rooms of Mr. E. France, Platteville, Wis., Oct. 8, 1890. A large number was added to the membership, including some from Dubuque Co., Iowa, and Darlington, Wis. On account of so many papers read before the convention, and the dis-

SOUTHWESTERN WISCONSIN BEE-KEEPERS' ASSOCIATION, HELD AT PLATTEVILLE, OCT. 8, 1890.

cussions that followed, for want of time questions had to be somewhat limited.

The association has now become large enough, and interesting enough so that the probability is it will soon require two days for its conventions instead of one, as heretofore. Had there not been an evening session some of the papers, discussions, and questions would have had to be laid over. A gathering of the assemblage was soon arranged, when the artist took two shots, and I am happy to present you a good view of the convention.

The cordial entertainment and hospitality extended by Mr. France and family is simply a matter far beyond any expectations; and it is probably a question whether any class of people but bee-keepers could excel in such a welcome as was enjoyed there. Mr. France has a cabinet of collections that is well worth the time and trouble to go and see.

The enjoyment of the meeting, so many being there, and the new acquaintences made, gave us no time to indulge in any bad grammar about the drenching torrents that poured down along the road to our homes. Such gatherings are not only a gain of knowledge, but they promote benevolence, charity, and good will toward all men; and if there was any exception to the above, it is to be regretted by the majority. The next convention, if not otherwise changed, will be held in Lancaster, Grant Co., Wis., of which due notice will be given.

The following is the list of names corresponding to the numbers above:

1. James Armont, Argyle.
2. John Hohmann, Durango, Iowa.
3. Mrs. N. E. France, Platteville.
4. Frankie France, Platteville.
5. N. E. France, Platteville.
6. Miss Ida Smith, Darlington.
7. Mrs. E. Pike, Boscobel.
8. Mrs. W. Bailie, Lancaster.
9. Mrs. H. Gilmore, Georgetown.
10. Mrs. M. M. Rice, Boscobel.
11. Mrs. R. K. Jones, Boscobel.
12. Ben. Rice, Boscobel.
13. H. Evans, Wauzeka.
14. E. France, Platteville.
15. E. Pike, Boscobel.
16. Mrs. R. D. Wilson, Platteville.
17. Mrs. H. C. Gleason, Lancaster.
18. Mrs. E. France, Platteville.
19. William Kaump, Cuba City.
20. R. L. Clark, Georgetown.
21. John Clark, Potosi.
22. Joseph Patzner, Potosi.
23. Charles Patzner, Potosi.
24. Henry Franke, Potosi.
25. G. W. Kendall, Boscobel.
26. R. D. Wilson, Platteville.
27. John Kemp, Jamestown.
28. R. K. Jones, Boscobel.
29. L. C. Fuller, Dubuque, Iowa.
30. W. H. Prideaux, Bloomington.
31. William Seeman, Boscobel.
32. James Harker, Argyle.
33. W. J. Bailie, Lancaster.
34. H. C. Gleason, Lancaster.
35. Austin Dexter, Boscobel.
36. M. M. Rice, Boscobel.
37. Henry Clark, Potosi.
38. John Kemp, Jamestown.
39. A. E. Cooley, Mt. Hope.
40. Mr. McLean, Platteville.
41. Delos Ricks, Boscobel.
42. George Fox, Big Patch.
43. H. C. Gilmore, Georgetown.
44. J. L. Lewis, Dubuque, Iowa.
45. James Wisdom, Boscobel.
46. J. W. Van Allen, Haney.
47. E. D. Peake, Jamestown.
48. Norman Clark, Potosi.
49. Seaman Howe, Platteville.
50. Martin Oudyn, Platteville.
51. Walter Pretts, Platteville.
52. Charles Nye, Jr., Platteville.

Boscobel, Wis., Oct. 13. BENJ. S. RICE.

Here is what another says of it:

This was the poorest honey season in this section ever recorded. Average, 14 lbs. surplus, from 1656 colonies, as reported last meeting, Oct. 8, the date of the picture. No foul brood has ever been in our circle of members. We raise mostly extracted honey, and sell it in the West. N. E. FRANCE.

Platteville, Wis., Nov., 1890.

We do not often give reports of local bee-associations; but along with it as above came a most magnificent photograph, and we could not resist the temptation to have the same reproduced in half-tone along with the report, so that our readers might enjoy it as we did. Why, it is inspiring to look upon those faces, and there are several of them that form quite a pleasant study. The natural poise of most of the figures, and the depth of expression of the faces, is most excellent. Of course, the reproduction of the above is not quite equal to the photograph, but you get nearly the effect by holding it a little further away than the average reading distance, say about 14 or 15 inches. There, now, notice particularly No. 14. Why, that is our old friend and veteran bee-keeper, and correspondent, E. France. Then in the foreground, No. 5, is Mr. N. E. France, and Master Frankie France beside him. The light was a little too strong for his eyes, evidently. I wonder if Miss No. 6, with the papers in her hand, was one of the essayists of the day. (The figure 6 does not show very plainly, but its location can not be mistaken, for it is between 5 and 7.) Miss Smith looks as if she might be equal to the occasion.

Right here I wish to urge upon all our readers the necessity of forming, if possible, local associations. Make some prominent bee-keeper its president, and some other one, equally prominent, it may be, its secretary. After that, organize a good rousing society, and see what a nice lot of people bee-keepers are. Oh, yes! after you are well organized, affiliate with the N. A. B. K. A. While we can not promise to publish reports of these local associations we will do all we can to encourage them. Let the good work go on. E. R.

RAMBLE NO. 34.

AT THE RHODE ISLAND STATE FAIR.

The morning of September 22 found the Rambler at the railroad station, and ticketed for Providence, R. I.; and we were soon caught up by the train and hustled rapidly through the country. When we had become comfortably seated, and glanced at our neighbors, we found a very bright and active-looking young man attracting much attention. He was in charge of an officer of the law, manacled, and on his way to jail. Every one who came near was invited to look at his shining bracelets; and we never had presented to our vision a better object-lesson of cause and effect than when a bottle of liquor dropped from his side pocket, and, before restoring it, it was raised to his lips. The bottle and the shackels! Our thoughts ran into a train of moralizing, and the following lines from Pope came forcibly to mind:

Vice is a monster of such hideous mein,
As, to be hated, needs but to be seen;
But seen too oft, familiar with its face,
We first endure, then pity, then embrace.

This young man had entered into temptation, endured, pitied, embraced; and instead of living a loved and useful member of society, this one evil had made him a felon. Down with the traffic that fills our jails with so many wrecks! is the watchword of the Rambler. The last we saw of our neighbor, he was still showing his shackels to people on the street as he was hurried along to jail.

We whirled merrily along through the famous Hoosac Tunnel, and over a very winding way among the charming mountains that thus early began to be tinted here and there with the glowing autumn foliage. But few farmhouses were seen in these valleys; but we now and then came suddenly upon thriving villages. As we neared Worcester the country looked more thriving agriculturally, and a machinist of Worcester gave the Rambler much information about this portion of Massachusetts, and of Worcester in particular. One item of interest to bee-keepers is that here the first wire nails were manufactured in this country. The wire-works occupy a large space in the city, and employ 3700 men, and make an immense amount of wire and nails.

We arrived in Providence in the evening, and, after a night's rest at the Merchants' Exchange, we were ready for the duties of the day, and that was to attend the R. I. State Fair, held in Narragansett Park, and award the premiums in the bee and honey department.

We reported at the secretary's office; were shown where to find the sweet things, and proceeded to take a private inventory before we made our identity known. In our pre-ramble around the room we came across a young man by the name of Arthur C. Miller, and we revealed our identity. Bro. Miller then passed our identity around among the rest of the bee-keepers, and we all made a mutual exchange of identity by clasping hands. "Yes," said Mr. A. M. Cole. "I knew the Rambler as soon as he came in. That long-tailed coat, that umbrella, and that nose, looked so natural." We found not only a happy-looking crowd of bee-keepers, but a show of magnificent proportions; and we observed aloud to the friends, that Little Rhoda had a better display than the great Empire State ever had. There were nearly 100 entries, and about $130 in premiums to award. The R. I. Experiment Station, in charge of Prof. Cushman, made a fine display which did not compete for premiums. Nearly every style of hive in use by prominent bee-keepers was in this display, and a novel feature was a large cage in which a natural swarm was clustered on a branch of a tree, as in natural swarming.

The exhibit of comb and extracted honey proved by its quality and quantity that Rhode Island had not suffered much from a dearth of honey, and bee-keepers were accordingly feeling well. The various races of bees were represented in five full-sized glass hives and nine nuclei. The honey department was filled from morning until evening with a crowd of curious and interested visitors, and it was pronounced one of *the* features of the fair. From the exhibit of appliances we gleaned the fact that Rhode Island bee-keepers are as ingenious and progressive as any in the world. This down-east Yankee ingenuity was manifest in Mr. Miller's foundation-fastener, illustrated some time since in Gleanings, and which is gaining favor with bee-keepers; also Dr. Merchant's crate for comb honey, which we will try to describe in the future; also many articles in the exhibits of Mr. Thos. Pierce, A. M. Cole, Mr. Nivens, and Prof. Cushman, all showing ingenious labors for the elevation of our industry.

Aside from bee-keeping, the Rhode Island Fair was in every way a success. Every department was large and well filled; the weather was exceptionally fine, and 50,000 people were upon the grounds during the best days.

Narragansett Park is in the suburbs of Providence, a no mean city of about 130,000 population. A drive with Mr. Miller through a good share of it gave us a chance to see its many points of beauty and historic interest. Among the thousands of noble shade-trees in the city are a great number of English linden, making excellent pasturage for city bees, of which there is quite a number. As those conversant with the history of Rhode Island are aware, this city was founded by that liberal-minded old man, Roger Williams. The people venerate his name to the present day; and his familiar greeting, "What cheer?" is found upon many places of business. After he had been buried 200 years, or, as a satirist expresses it, "until he became sufficiently dead," he was exhumed and buried in Roger Williams Park, where a splendid monument is erected to his memory. Upon digging to where the remains ought to have been, it was found that the roots of an apple-tree had completely absorbed the bones, and taken the form of a man. This curious root formation is now to be seen in the historic museum of the city. As several generations had eaten the fruit of the tree, the question was seriously asked, "Who ate Roger Williams?" Our satirist happily explains the situation:

But a jolly old apple-tree rooting around,
Seeking for phosphates under the ground,
Followed his back-bone all the way down,
And old Mrs. Williams's too.

What's bred in the bone, in the flesh will show;
What's bred in the root, the fruit will know;
For two hundred years this fruit did grow,
Till posterity ate him up.

Rambler.

BEE-HIVES.

A SUBJECT THAT INTERESTS ALL BEE-KEEPERS.

In my bee-keeping experience I have found that I could generally get the attention of almost any bee-keeper when I had a new hive to exhibit, or was ready to discuss the hive-question. In fact, there is nothing connected with bee culture that will attract the attention of the average bee-keeper, or one that interests him more than a good bee-hive. Almost all bee-keepers are looking for something better in hives than what they have in use. In my day I have devised not far from twenty different

styles of bee-hives; and all but one were discarded after testing them a few seasons. There are several points I never lost sight of when trying to construct a practical bee-hive. Some of the points are these:

1. A proper brood-frame; 2. A hive suitable to winter bees successfully on the summer stands; 3. A hive so constructed that it can be set in the sun without protection all summer, and without danger of destruction of the combs or of roasting out the bees; 4. A hive so arranged that the largest amounts of both comb and extracted honey can be secured.

In some of the hives I have devised I could not combine all the desirable features here named. In my last attempt to construct a practical hive, and one suited to most classes of bee-keepers, I think I have combined all the best features. This hive is called the

BAY STATE CLOSED-END-FRAME HIVE.

I do not claim, by any means, that the Bay State is the ideal hive; but I do claim that it is good enough for any bee-keeper, and that it has but few if any objectionable features. I will describe some of the good points of the Bay State, and explain the illustrations in as few words as possible.

Fig. 1 shows the brood-chamber, which is merely eight closed-end frames, two side-boards, and two iron rods with thumb-nuts at each end. The frames rest on a bottom-board (illustrated in Fig. 5), and which is described further on. Resting on the brood-frames are four section-cases, each containing 24 1-lb. sections. This case, like the brood-chamber, is composed of frames or section-holders, as some bee-keepers call them. The broad frames, as well as the sections, are held firmly in position by being clamped between two side-boards through which runs an iron rod, which also has thumb-nuts at the ends. A description of the case will be given further on.

It will be seen in the illustration, that the cap which covers the section-cases is the same as used on the hive shown in Fig. 3.

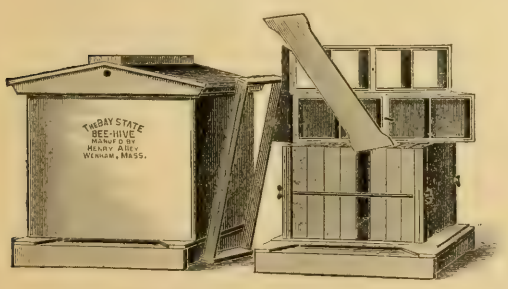


FIG. 2. FIG. 1.

BAY STATE HIVE DISSECTED AND READY FOR WINTER.

The Bay State hive is used in summer exactly as is shown in Fig. 3. Ninety-six sections can be used to good advantage on the hive at the same time. I have had colonies fill all in one good season—something which is considered a big thing here, when it is known that our honey season is of but a few weeks' duration, including both favorable and unfavorable weather.

Now a word about the way we manage the Bay State hive to get comb honey, and to use so many sections at one time. Of course, no sane bee-keeper would think of placing 96 empty sections on a hive at one time. One case of 24 sections is enough to start with, even with the strongest colony. When one set of sections is pretty well filled, it is removed, reversed, and a new set of sections put on the hive, and the first set placed upon that, and so on till there are three or four sets of sections, or as many as the bees can work in at one time when tiered up. The passageways through the four cases are direct from the brood-chamber to the top sections. By this plan the empty sections are at all times nearest the brood. I believe that the sections can be put nearer the brood in the Bay State hive than in any other one now in use. This is a point I have tried to incorporate into all the hives I have devised.

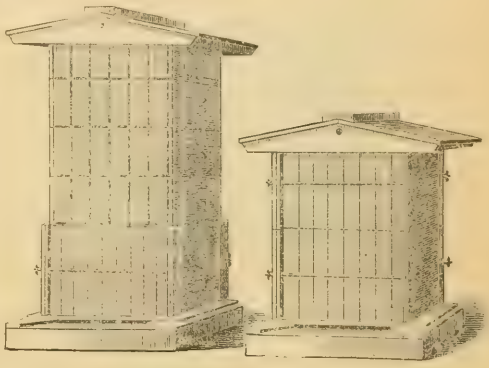


FIG. 3. FIG. 4.

BAY STATE HIVE FOR COMB OR EXTRACTED HONEY.

Another good point about this hive is, that it is not necessary to use any queen-excluder between the section-cases and the brood-chamber; and, furthermore, of the thousands of Bay State hives in use, no queen has ever been known to enter the sections and deposit eggs therein. Can this be said of any other hive in use? By reversing the sections when partly filled with honey, the bees attach the combs to all sides of the wood. This is a feature appreciated by all who find it necesary to ship honey a long distance to market. Bear in mind, that 24 sections are reversed at one time, and none can get out of place during the operation.

Here is another point about this section-case worthy of mention: The sections are all incased in wide frames, and it is impossible for the bees to get at them to soil them with propolis or by traveling over them. At the same time, every section is held in a perfectly square position.

Fig. 4 represents the Bay State hive as used for extracted honey. There are two sets of brood-frames—one over the other, with a queen-excluder between the two hives. On the top is used an ordinary honey-board, and then all is protected from sun and rain by a hive-cap, the same as seen in Fig. 4. A small stone, or weight of any sort, will prevent the wind from blowing the cap off. What little rain will reach the frames or section-case can do ho harm.

Fig. 2 illustrates the hive as prepared for winter. By examining Fig. 5 (bottom-board) it will be seen that G G and F, are strips of wood upon which the brood-nest rests. These strips are ¾ of an inch thick. The outer case shuts down outside these strips, thereby completely excluding all water, and thus preventing the packing, when any is used, from becoming wet. As the entrance, E. E. is below the level of the bottom-board, and directly under the strips the frames rest on, no water can enter the hive there.

The sides of the winter case are but ⅜ of an inch thick (⅞ board split), thus adding materially to the lightness of the hive. When complete in all its parts this hive weighs but 35 lbs.

Fig. 1 gives a good idea of the brood-chamber, section-case, etc. One frame is removed from the brood-nest to show the saw-kerf in the top-bar, for inserting foundation comb-guide, or for fastening full sheets of foundation when desirable to do so. The foundation is placed in the kerf, and then three one-inch wire nails are driven through the bar to hold the combs in place. The work is quickly done; and, when properly done, the foundation will hang perfectly true within the frame.

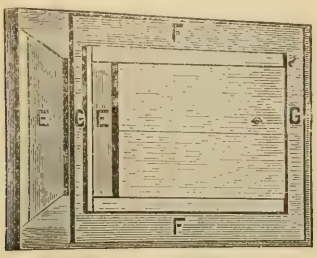


FIG. 5. BOTTOM-BOARD.

It will also be seen in illustration, Fig. 1, that one wide frame is removed from the section-case, thus showing the sections and the separators, which, it will be seen, run the full length of the case.

The Bay State hive has but 8 brood-frames, and a capacity of about two-thirds of a ten-frame L. hive. We have used this hive six seasons, and find it large enough for all practical purposes, and first-class in every respect. The brood-chamber is so compact and so well protected from the weather by the outer case, that colonies breed up rapidly and quickly in the spring. No hive can winter better on a summer stand.

The hive is so constructed that the closed-end frame or the L. frame can be used without any change to the bottom-board. Of course, the L. frames must be used in a box or case so that the frames can hang on rabbets.

Wenham, Mass., Dec. 1. HENRY ALLEY.

Our new Dovetailed hive with fixed frames has very many points similar in principle to the Bay State. You say that queens have never been known to enter the upper story of your hive. But, friend Alley, they will do so *sometimes* in all hives without perforated zinc, and yours would hardly be an exception. We have had no reports that queens went up into the upper story of our Dovetailed hive; but we have no doubt that there *are* instances when the queens have gone above. The outside case of your hive is, without doubt, a nice thing. Without knowing that you had such an arrangement we (that is, the younger part of the editorial staff) have been having a sort of leaning toward a case almost identically the same. Twenty-eight of our colonies have such cases over them for the winter, for experiment. As to how it will winter bees, you are silent in your article; but in your journal you have spoken highly in its praise.

THE ADVANTAGES OF THE CLOSED-END FRAME.

MR. L. C. ANTELL GIVES VALUABLE TESTIMONY.

As a bee-keeper here in the West, I have thought for several years I was nearly alone in the use of the closed-end brood-frame. But I was conscious of the fact that its merits here were not fully appreciated.

Now, the question has been raised, "What are its merits?" I will state how I came to use them, and why I adhere to them.

When our first swarm of bees was bought, which was in 1871, it was put into a box hive. The next year it gave two swarms, and probably 25 lbs. of honey, which we then thought was a prodigious crop. By mismanagement we wrecked one of the colonies. We were so wrought up by this loss that we talked with every person who had bees in our vicinity, and learned from them all they knew on the subject, and that was but precious little. We borrowed Langstroth's book, "The Hive and Honey-bee." Also hearing of M. Quinby's work, "Mysteries of Bee-keeping Explained," it was purchased and read. Soon we had on our table nearly all that was then printed about bees, and contents discussed. As yet we used only the box hive; but now it *must go*, and be replaced by a movable-frame hive.

After careful study we decided that the Quinby hive would be best for wintering purposes, so one was ordered, and all my first hives were made after that pattern. I think it was after using these hives two years that I happened to purchase a colony of bees in a hive with hanging frames—the Langstroth.

WHY THE CLOSED-END FRAMES HANDLE AS EASILY AS THE HANGING.

It occurred to me, "Now is the time to make a test of hives and frames." At the close of the season it summed up something like this: There was no difference in the amount of honey stored. Difference in hives did not figure much. Quinby hive cost most, but was best for out-door wintering. The decision, therefore, must rest on the ease of manipulation of frames in the hive. I have always produced nearly all comb honey, and the surplus combs could be handled about as easily in one hive as in the other, so that did not count. But with my closed-end frames, during the honey-flow I could slip out one, two, or three brood-combs and replace them without disturbing the surplus receptacles; while to do the same with hanging frames, the surplus receptacle would have to be removed, then move at least two of the brood-frames in order to have room to take out the first frame; and in replacing I had to be much more careful than with closed-end frames. But if all brood-frames had to be handled, there was a still greater difference. In this case the supers would have to be removed from and replaced on each. But in using the closed-end frame, pry apart, leaving two, three, or even four stick together with propolis; lift them out of the hive, three or four together, and replace them in the hive in the same condition, push them close together; close the hive and the work is done. They are always properly spaced.

OBJECTIONS TO HANGING FRAMES.

With the hanging frame there is always the difficulty in getting out the first frame, so as not to kill bees or make them angry; then instead of handling three or four at a time, having to take out one by one. But putting back the frames is worst of all. They must be put in one by one; and when done as carefully as you may, perhaps there is not half room enough

for the last comb, and nothing to do, but re-space again; and when done—oh! too much room, and the work has to be done the third time. Have not all who use narrow frames had a similar experience many times?

THE ADVANTAGE OF REVERSING.

Another real advantage of the closed-end frame as I use it, is, that when the combs are out if any are not built down to the bottom-bar they are just as easily placed in the hive with the bottom-bar up; and if left so a few days, when honey is coming in freely they will be built solid to the bottom-bar, ready to be turned back with the top-bar up when the hive is opened again.

HOW TO PREPARE HIVES WITH CLOSED-END FRAMES FOR MOVING.

When hives are to be moved, put a rope around the hive, tighten it with a short stick, tack the entrance-blocks. Now all is solid, and ready to be placed on the cars, or carried on a wagon, if the weather is cool. If the weather is hot, of course there should be wire screen instead of roof on the hive.

OBJECTIONS TO THE QUINBY HOOP-IRON HOOKS.

The hoop-iron catches at bottom of the end-bar are on nearly all our frames; but in practice we hardly ever use them, as they get filled with propolis and wax. They work so easily without, simply shove them close together, then put the quilt or section-case on, and they will stay in position all right.

Were I now to begin keeping bees, with just the knowledge I now have, the full closed-end frame would be my choice. I am not sure but those using the hanging frame will find it to their advantage to make all their new frames with the upper half of the end-bars 1⅜ inches, and thus in a measure secure the benefit of closed-end frames. L. C. AXTELL.

Roseville, Ill., Dec. 2.

At the outset I will say that, when we speak of hanging frames we mean those *not* fixed. There, now, didn't I tell you so? and I am very glad that I have so good authority as Mr. Axtell in the West, and Mr. Elwood and Mr. Hoffman of the East, to bear me out in the fact that fixed frames can be handled just as rapidly (and *I* think a little more so) as the hanging frames. Mr. Axtell speaks from extended experience, in the production of many tons of honey, and every word he says in reference to the manipulation of closed-ends I saw verified in the apiaries of the East. It takes a good deal of hammering to make folks see the point; but at the risk of harping on one thing a good deal, I am going to say again, that, where the fixed-frame people gain time over those having frames not fixed, is in the fact that the latter can handle *four or five at a time*. They do not bother with handling a single frame if they want to get at the center of the brood-nest. They simply take out all the frames *en masse* up to the point of comb surface they wish to examine. In this way they can almost handle *hives* instead of *frames*. Read over again what Mr. A. says on this point.

Our friend speaks of the hooks on the bottoms of the old Quinby frame as being somewhat objectionable. Very likely they may be dispensed with. But in Mr. Elwood's apiaries these hooks had neither propolis nor wax on them. In fact, the bees could not get access to them if they desired, without going clear to the outside of the hive to chink in the wax and propolis—a thing they would not be likely to do. But it is no more than fair to state that Mr. Elwood uses a modified Quinby system. As he is soon to present to our readers a series of articles, I will not speak further on this point.

Mr. Axtell alludes to the nuisance in removing supers to get at the lower frames in the L. hive. Why, on our regular hives, the Dovetailed for instance, we have no trouble, because we lift a whole upper story off at once. Then we have perfect access to the brood-frames below. If the same were fixed, as, for instance, the Hoffman, we have all the advantages that our friend speaks of.

Friend A. mentions the advantages of an end-bar, widened at the top 1⅜ inches, for ordinary hanging frames. This would make virtually the Hoffman. I think this one handles fully as easily as the closed-end, and for ordinary hanging-frame hives it is perhaps the best of the fixed frames.

Now, dear readers, if good and reliable witnesses say a thing is true, that either the Hoffman or closed-end frame is not an awkward implement to handle, but, on the contrary, possesses many decided advantages over the old hanging frame, let us not be so conservative as to block the wheels of progress. It may not be feasible or advisable for old bee-keepers of the hanging-frame school to change; but it may be an advantage for the new crop of bee-keepers coming on, to get started along the right track. Still further, as old combs are to be continually replaced in large yards more or less, it may be desirable for old bee-keepers to work in, for instance, the Hoffman, by degrees. Experimenting along in this way is quite safe, and is not likely to lead to any serious results, should this fixed-distance craze prove to be a mistake.

I hope some of our closed-end, or partially closed-frame friends, will not be so modest as to keep quiet much longer. There is friend E. T. Flanagan, who has used the Hoffman. I believe we have not heard from him very lately. Then there are several others. Let us have truth, wherever it may fall. We are glad to hear from Mr. L. C. Axtell. It is a good thing to get a glimpse of both sides of the house—husband and wife side, I mean. Both are capable bee-keepers. E. R.

THE HIVE FOR THE HONEY-PRODUCER—SINGLE OR DOUBLE WALL?

A REVIEW OF THE HIVE-QUESTION.

As a great many bee-keepers will soon be thinking about the hive they will use next season, a few words on this subject may not be out of place now. Perhaps no one will dispute the

fact, that the mass of bee-keepers who are keeping bees for profit demand a cheap, simple, practical hive. Shall this be a single-walled or a chaff hive? is a question not so easy to decide. If the single-walled will do, then we need look no further than the Dovetailed; but this must be protected, if wintered outdoors; or, if wintered in the cellar, spring protection is needed. It has been suggested by Ernest and several others, that an outside case be made for winter; but A. I. Root predicts that such cases will never come into general use, and I think he is right.

Well, what about chaff hives? I think this: The heavy, expensive chaff hive, with walls five and six inches thick, requiring two men to move around, never has been used to any great extent by our large honey-producers, and is too expensive and bulky to ever become popular with the mass of bee-keepers. It seems to me that such thick walls are worse than useless, as they prevent the warmth of the sun from reaching the bees, which I consider quite an advantage, especially in the spring, after brood-rearing has commenced. I also consider a double bottom useless, for, if the hive stands as near the ground as it should, the packing will become damp.

I have been using a hive several years that I think would suit the class of bee-keepers spoken of on page 697; i. e., those who produce comb honey, and winter on the summer stand. This is an eight-frame chaff hive, arranged for two inches of chaff around the lower story; but I have used the most of these without chaff, and can see no difference in wintering. The hive is made from light lumber; and with a handle on each end it is almost as easy to move as a single-walled hive. It has a side-opening in the upper story, which is very convenient for taking off surplus or working in the brood-apartment. With thick top-bars and a T-tin super containing a follower to key up the sections, I consider this the most practical, economical, general-purpose hive in use. G. H. Kirkpatrick.

Union City, Ind., Nov. 29.

Friend K., you strike a chord that affects most of us. We want an all-purpose hive. The regular chaff hive which we have been selling is rather large and cumbersome to move about, and, besides, expensive. What we want, I think, is a single-walled hive so arranged that it can be converted into a winter hive for outdoors with small expense, when so desired. If an outside case will winter bees successfully in most latitudes, then I think its ultimate adoption is assured, by the outdoor-wintering class. The one thing in the way has been this: If such a case shall require packing, it will make it objectionable. But you say that you can see no difference between hives packed and those not packed, so far as wintering is concerned. That is just the information we are after. Your chaff hive may be small and compact, but it can not be as small and compact as a single-walled hive. For those who desire to winter outdoors, they want outside protection of some kind to put around the small hives. Now, then, when they come to move an apiary all they have got to do is to move the small hives, and, in the fall, cart, in a large hay-rack wagon, say, the large outside cases to the yard. See remarks on this point from R. F. Holtermann, on the next page. E. R.

BEE-HIVES, LARGE OR SMALL.

GOOD ARGUMENTS FOR LARGE HIVES.

In reading the magazines devoted to bee-keeping I often meet with articles describing experiences with bee-keepers with their hives differing from my own. In 1861 I adopted the Kidder hive. The inside measurement of its frame is 11 by 13 inches. The Kidder is a double hive—or, rather, two hives in one. The inner part holds eight frames; and the outer part, when used by itself, holds eleven frames. The same frame fits both, running the longest way in the smaller part, and the shortest way in the larger part.

I constructed 50 of these hives, and used them as double hives until they were full of bees. Then I separated the hives, using each part as a hive. The first difference between them that I noted was that the small hives sent out the most swarms, and not very large ones. They were slow to work in boxes, and would often swarm a second time before doing so. The large hives, on the contrary, would send out much larger swarms, which would go immediately into the surplus apartments, and, as a rule, gave much larger returns for the care bestowed upon them. This comparison I have carried on for twenty-five years; and the result is, that I am now using the small hives for kindling-wood, having destroyed fifty of them for that purpose.

I have made some changes in the method of using my hive, which can be applied to any hive. I have changed the entrance so that the frames run across it. This enables me to put in one or more frames, and have a nucleus hive, with but one division-board, or adapt the size of the hive to the capacity of the swarm, up to the full hive. With frames running the other way, two division-boards would be required to accomplish this. I like this hive well enough; but if I were going into the business anew I would use the Langstroth or Simplicity, because they are more generally used; and if you wish to sell, they are more likely to suit your customer. I would adapt any hive to this method of using the division-board. The bees do not seem to know or care whether they enter the hive at the end of the frames or at the side. They deposit most of the pollen in the frames next to the entrance; and if you do not like the bees to have access to the pollen in the winter, you can easily remove these frames and substitute frames of honey. My largest hives, as a rule, have the most bees, breed faster in the spring, put in more surplus honey, swarm less and winter better, than the smaller hives.

CAGING QUEENS TO PREVENT SWARMING.

Some cage their queens during the honey-flow, for fear they will have too many consumers to eat the honey after the honey season is over. My experience is, that a large swarm is almost sure to store more honey than they eat, while a small one might fail in this respect. Then if you have a "giantess" for a queen, a large hive will give her a chance to do for you the best she can. A poor queen is of little or no value except to hold the swarm until a better one can be raised. Queens over two years old are, as a rule, not as good as younger ones.

Give me a good-sized hive and a young and vigorous queen, and I shall expect my share of the honey if there is any in the blossoms.

L. C. Whiting.

Saginaw, East Side, Mich., Dec. 1.

We are very glad indeed to see our old friend Whiting contributing again to Gleanings. His experience with large hives agrees remark-

ably with that of friend France in many respects. My experience with large colonies agrees with the above. The powerful ones get honey when ordinary colonies seem to be losing, and yet I could never quite fully understand it either.

THE OUTER WINTER CASE.

SOME OF ITS ADVANTAGES.

I should like to give a few reasons why the outside protecting case for the Dovetailed hive, as proposed by E. R. Root, will be superior to the old chaff hive. It will be cheaper and less complicated. The shell can be lifted from the hive, and then the hive manipulated as a single-walled hive in summer. I say, in *summer;* for should I take them they would certainly be retained for shading purposes during the heat of the summer. Of course, the chaff hive answers the same purpose; but the difference is in hauling bees, shipping, carrying into the apiary, etc. There is a wide difference between the two. In shipping, the shells (or cases) if desired can be shipped ahead by freight, and the bees expressed. In hauling, the experienced apiarist can take a full load of bees and send an inexperienced man the following day with the shells. In fact, I can not help thinking that a more valuable thing has been designed that we at first have given credit for. In summer we place this shell about the hive, say propped up on four posts, so that the shell has the same relative position to the upper story that it had during winter. With the body in that way, we secure a current of air between the hive and shell, and have the sun effectually broken.

PROPOLIZED QUILTS.

I lately saw an excellent idea in regard to propolis. Geo. Morris, Stony Point, scrapes the propolis from the frames and quilts; and after heating it he brushes it on the quilts he is about to put on the hives. The result is, the bees will not bring in nearly so much propolis, and thinner material can be used for quilts, as the bees will not gnaw through them. I last saw them Sept. 1. They were then not even attached to the top-bars. How they are now, I do not know. R. F. HOLTERMANN.

Romney, Ont., Nov. 17.

The outside winter case is an old idea; but the mere fact of its being old may not alter its value to the modified bee-keeping of to-day. Yes, there is quite a point for such protection; viz., sending the outside cases to the apiary with cheap help, either before or after the bees in the small hives are moved. It is not feasible to move bees in large chaff hives. Mr. Manum does not do it.

THE NORTH AMERICAN BEE-KEEPERS' ASSOCIATION.

DR. MILLER TALKS TO US ABOUT IT.

It isn't so many years since the senior editor of GLEANINGS not only stayed away from bee-keepers' meetings, but, I think, advised others to do so. "A wise man seldom changes his mind: a fool, never." Friend Root is not a fool, so in this case he has changed his mind, and now wants some one to punch him up if he should try to stay away from another meeting of the North American. Good!

Some pretty severe strictures upon the course of that same North American moves me to ask space in GLEANINGS to say some words about it. An association of the kind is needed for the best interests of bee-keepers; and until such association is just what it ought to be, it is right and proper that it be discussed. Now is the time to begin such discussion, without waiting to take up time at the convention at Albany. So, friends, if you see something that needs mending in the ways of the association, let us have it in print, and have it soon, so that any thing that needs it may be mended if possible before the next meeting.

One point that has come in for its full share of criticism is the matter of obtaining reduced railroad rates to the convention at Keokuk. To get the best attendance we need low railroad fares always; and this year especially, when crops were so poor, we should have had reduced rates to Keokuk. Some one may suggest that, as I was a member of the Executive Committee, I am condemning myself. I was only treasurer, a sort of silent partner, and it would have been out of place for me to put myself forward and attempt to do the work of the president and secretary. Besides, I did urge the matter. Really, it is the secretary who usually attends to things of this sort; and the only thing left to be done now, is to pass a vote of severe censure upon Secretary C. P. Dadant for culpable neglect of duty—a neglect for which those who attended had to pay in dollars and cents, and which prevented some from attending.

But, hold on—hold on! In stating what *ought* to be done, it is important, in many cases, along with the *what* to give the *how*. And before we call down too many anathemas upon the devoted head of the poor secretary, it may be well for some one to rise and tell how he could have got reduced rates. If I am rightly informed, application was made, at an early date, to the railroads for reduced rates, to which they replied that it was too early, and that the matter could not even be considered by them. After waiting months and using what leverage could be brought to bear, the secretary finally got an answer. The railroads would grant no favors. I don't know what else the secretary could have done. Do you? If you do, tell it; and if you know any thing that will help in the future, tell it; for that is of more consequence than the past.

At Keokuk it was urged that a place should be selected to which we could get reduced rates on account of something else than our meeting, and that was the weighty argument in favor of Albany. If the association becomes sufficiently large, I believe we may be able to command concessions from the railroads without any begging.

Now, friends, instead of standing off and throwing stones, let us come together and talk it over—in print. If there are wrongs, tell what they are; and above all, tell *how* they are to be righted. Some think the association should be effective in bringing up the price of honey to accord with its scarcity. Just the thing to suit me—if it can do so.

I am satisfied that good will come of discussion. Some mistakes will be shown and corrected. Other things will be shown impossible of amendment; and knowing this we will endure them the more patiently.

One of the worst things about the association has been the flimsy character of its organization, as mentioned by Pres. Taylor. The movement for its incorporation is a long step in the right direction. Some of our editors are making a push to secure funds from life-members, and use up the money. The secretary

has evidently been doing some thinking about this, and thinks we ought to "consider the matter of placing the funds that may hereafter be collected from affiliation and from life-memships in some safe interest-bearing bonds, so that the capital that may be thus paid in be not squandered." He says: "Annual memberships ought to pay annual expenses, and the interest of the capital ought to furnish prizes and medals." There would be an element of permanence about this which is desirable. I confess, however, that I would just as soon see all the money in the treasury cleaned out every year, or nearly so, if some plan could be devised by which equal permanence could be secured. The affiliation fees will come annually, just as much as the fees from annual members.

Stability of membership is a desideratum never yet reached. We are, perhaps, behind all the world in this respect. Can not some means be devised by which a permanent membership of four or five hundred can be secured? It is done elsewhere, I think. Are the obstacles insuperable here?

Is there any sufficient reason why the "Beekeepers' Union" can not be merged into the N. A. B. K. A.? That seems somewhat permanent. Why not both together? C. C. Miller.

Marengo, Ill., Nov. 26.

All right, friend M. We second all you say. In regard to reduced rates for the convention, we tried our hand at it here, and received courteous replies to the effect that the number in attendance was too small to admit of the reductions we desired. I guess this is so, friends; and therefore the only thing to be done is to get the membership up to 400 or 500, as you suggested.

ARTESIAN WELLS.

THE FLOWING WELLS OF FLORIDA.

Mr. Root:—You seem interested in flowing wells, so perhaps a few words on that subject will be acceptable. Along this, the east coast of Florida, there are hundreds of flowing wells. Most of the houses, even in the towns, have their well of water flowing, and no trouble about pumping. A pipe varying from one to four inches in diameter is driven down until it strikes rock, when a drill is put inside of the pipe, and the rock drilled until water is struck. Sometimes no rock is struck until nearly to water, and the pipe with a point is driven through to the water. There are several layers of rock with sand, etc., between them; and the more layers the pipe or drill penetrates after reaching the flow, the larger the flow of water, though I believe the water rises no higher.

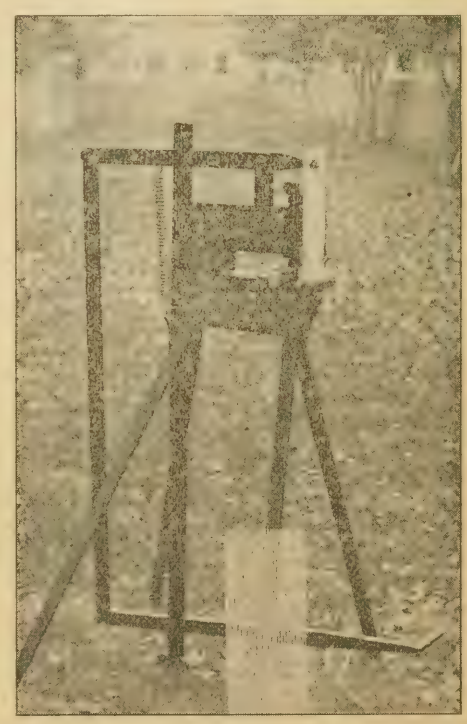
The water is struck about 60 to 90 ft. below the surface, and rises, I believe, 16 ft. above sea-level, and usually fills the pipe. A three or four inch pipe, with a strong flow, makes quite a stream of water, and makes it very convenient, as the water may be piped into the house, used for irrigating, etc. As a well with an inch or 1¼-inch pipe costs only $50 or $60, they are not very expensive. By using a ram, the water may be forced as high as is wished. The water is hard, and is said to be impregnated with sulphur. At this place, next to the ocean, there is a peninsula nearly half a mile wide; then the Halifax River more than a mile wide; then the mainland. Wells on the peninsula, or driven *in* the river, flow just the same as on the mainland. It looks strange to see fresh water bubbling up out of a pipe, and the surrounding water salt. The quality of water varies considerably in different wells. In some the sulphur is so strong as to be very offensive to some people; in others, little or none can be detected. The temperature also varies considerably. Daytona, five miles north of this place, is called the "Fountain City," from the number of wells it contains. John B. Case.

Port Orange, Fla., Nov. 24.

ANOTHER ZINC-PERFORATOR.

A SMALL FOOT-POWER MACHINE.

Find inclosed a photograph of a foot-power punch I have had made, which perforates four holes at one stroke. The whole thing is made of iron and steel, and is substantial and perfect. The die is held in a chuck, and regulated by four set-screws, and the teeth to the punch are of different lengths, and shaped so as to "shear,"



REESE'S FOOT-POWER ZINC-PERFORATOR.

which makes it cut easily, and with very little power. I inclose a sample of zinc, cut by my machine on the margin of a piece which came from you, I think, some time ago. The machine was made by W. T. Clifford, Wellington, O., who, I think, is to congratulated. I want to have this machine on exhibition at the World's Fair, Chicago, 1892. J. S. Reese.

Winchester, Ky., Nov. 18.

We take pleasure in presenting in half-tone the photograph presented by Mr. Reese. The appearance of the machine indicates that it was gotten up by a mechanic; in fact, the punches and dies are so accurately fitted that it perforated perfectly a piece of *tissue* paper which is before us. The samples of zinc were received;

and, if we were to judge, they are fully equal to the beautiful work done by Dr. Tinker. This, however, is a foot-power machine, and is limited to the perforation of only four holes at a time. The machine we use is run by power, and cuts 64 holes at one "chank." Of course, this will make foot-power work more expensive, if time is worth any thing. This not only reduces the power required but makes nicer work. You will notice that we are giving our friend a little free advertising, but we are glad to encourage a little original genius once in a while in this way.

DAYLIGHT BREAKING IN THE HONEY BUSINESS.

IMPORTANCE OF GRADING.

Mr. Root:—We had some of that dark alfalfa extracted. Half that you sent us was that color. The sample sent us was nice and white. After receiving it we did not write you about it, as we thought you would doubt our word. We sold some to a druggist here in this city. He always writes to send him honey of our own production. We answered him, saying we had some from another State, and quoted him prices. He ordered, but has not yet settled. He has always been a good customer. We hate to go and present a bill for the honey, as we know he was not pleased with it. Some we sold to called it New Orleans molasses.

We also bought some honey in this State, called clover. After receiving we found it to taste pretty strongly of buckwheat. Being disgusted with the above purchases we went to New York and ordered some extracted honey that was white. They had none but California. We took that. We asked them to sample each can before shipment. They said that the quality was marked on the outside of each can. When we received this a large share was dark and not of first quality. We are now thinking of not buying a single pound more. We are disgusted with the whole business. We have had only one shipment that was as represented, and that comes from—I am going to mention his name, for those who sell good goods ought to be known—C. H. Stordock, Durand, Ill. His honey is *every way* first class.

Always keep it before the bee-keeper about careful grading. I am firmly convinced that a large trade could be worked up for extracted for table use, and at good paying prices. All it needs is a first-class article. F. A. SALISBURY.

Syracuse, N. Y., Dec. 3.

Perhaps some of the friends wonder at the heading to friend Salisbury's communication above. It is simply because friend S. has begun to talk right out in meeting about his troubles. He is most surely right—that a big trade can be built up if we can be sure of getting honey that is according to sample and according to label. Now, while it may not be best to publish the names of all the friends who have not heretofore been conscientious, it certainly will be safe and right to put the good men right in print; and may be we can decrease the former and increase the latter by so doing. Friend S., neither you nor anybody else need be backward about complaining of things that are not as they should be. Fix it up with your customer the best you can, and make out your bill; and if we can not trace it to the man who shipped us the honey, it is right and proper for us to bear the loss. Now, the main point is, can you give us the name or initials on the can or cans that contained the dark alfalfa honey?

GRAHAM BREAD.

WHY IS IT NOT MORE USED? ETC.

The facts are, the world is wedded to its daily habit of life. It insists on using bread made from flour which has been robbed of much of its best food elements by the bolting. Another objection which I once knew a lady to offer against the use of graham flour, was, that among her acquaintances those who used it were *infidels!* You have already treated us to a column about

"OUR DAILY BREAD."

In his "Science of Human Life," Dr. Graham devoted 40 pages to bread-making. Good bread is something that can't be *overdone*—unless left too long in a hot oven.

Now about those gems made of flour and water and a little baking-powder. Of course, they are nice. We often have them for a change. My wife calls them "popovers." They are certainly delicious, and, with butter, honey, and a glass of rich milk, are too good to—talk about!

But for every day in the year, gems made of absolutely nothing but flour (graham) and water, and a pinch of salt, in sweetness, delicious flavor, as well as hygienic elements, are perfection. Much importance attaches to the quality of the flour. That which is made at Akron, and sold by grocers, is not so good. It should be the entire product of clean wheat, ground and not bolted. It *has not* good keeping qualities, and should be obtained fresh from the mill.

TO MAKE GRAHAM GEMS.

Take of graham flour, quantity sufficient; a pinch of salt, with water to make the whole, when well stirred, of a consistency that, when dropped into the cast-iron gem-pan with a spoon, by its own weight it will form smooth. With a little butter, grease the gem-pan hot on top of the stove, and place it in an oven hotter than required for most kinds of bread. Note whether the gem-pan is hot enough to "sizz" when the butter falls into it; for if the oven is not heated hot enough in the start, the gems will be heavy and not fit to eat.

GRAHAM MUSH.

This is made by stirring graham flour in water boiling very hard. Salt to taste, and continue the boiling 15 or 20 minutes. It should not be made very thick. Serve hot with cream, or half cream and half milk, for breakfast, and cold with cream for lunch or supper.

RUSK.

Make dough of graham flour and water. Knead, and roll out on a bread-board; cut into slices, and bake in a moderately hot oven. After they have been baked, continue them in the oven with the door open until all the moisture has been dried out; break in pieces, and grind in a hand-mill. Serve with rich milk or cream.

Madison, Ind., Dec. 1. A SUBSCRIBER.

Very good, friend S. We hope the readers of GLEANINGS will all give your recipes a good trial, even at the risk of being made "infidels," as your good friend puts it. Now, we do not quite understand the point she makes. Did she sup-

pose that the graham flour was the cause of the infidelity, or was it simply because those who were skeptical in their theology had a preference for graham flour? Never mind: if we can not agree on theology it is comforting to know that we shall pretty nearly agree on the healthfulness of graham bread.

MRS. AXTELL'S EXPERIENCE AT THE KEOKUK CONVENTION.

SHE CONSIDERS THE HALF-DEPTH LIGHT HIVES FOR WOMEN.

Friend Root:—I see, from reading Gleanings of Nov. 15, that you also was one of the number that enjoyed the International hugely. Yes, that is just the word that would describe Mr. Axtell's and my enjoyment of that convention, and I heard quite a number express themselves as its being one of the best, if not *the* best they ever attended. Judging from the way people acted, they must have enjoyed themselves, as they would get together at 8, or half-past 8, A. M., and remain up to 12 o'clock, then hurry out to their meals, and back again to commence the meeting at 1:30, and then remain clear up to dark. Gas was lighted, and some one would remark that we were not doing ourselves justice to remain so long, and asked that some one make a motion to be dismissed, when we would hurry out to our rooms and meals, and back again for an evening session that held up to about 10 o'clock; and, what was strange, each meeting was just as interesting as the first, and no one seemed to grow tired. If one grew tired of a position, he felt at liberty to change it or go out of the room; but I noticed they generally came back very soon. Now, why was all this enthusiasm, if it was not that we are engaged in a very interesting pursuit? Mr. Axtell felt that his work was such he did not know how to leave; and, not feeling well, I had to coax hard to get him started. I could see it almost made a boy of him again; and I thought that, if wrestling were a test of boyhood, there were several boys there—old gray-headed boys.

I should have liked to see more ladies there. I wondered why there were not more, when almost always the apiarist's wife or mother or sister takes equal interest with him in the bees. Was it because both could not leave, that one or the other had to stay at home to do chores, ook after the family, etc.? I felt almost like accusing the bee-brethren of wanting the good times themselves.

From the little snatches of talk between meetings, as we met in the hall or in the sitting-room, at our meals, or in our rooms, too, we gleaned many useful thoughts. We liked the idea advanced by a Mr. J. D. Adams, of Nira, Iowa, that of being thorough in all we undertake with bees, as well as farming; of making two blades of grass grow where others made but one; of keeping the highest grade of poultry and taking the best of care of it, so that a small flock would pay better than twice the number of mongrels uncared for.

Dr. Jesse Oren, of Mount Auburn, Iowa, puts his bees in the cellar every fall, and goes to Florida, where he has a nice home also, to winter. He says one can buy an acre or two and build a small house, and live very cheaply if he wishes to. He can plant the ground to orange-trees, which come into bearing very quickly. Dr. Oren, before putting bees in the cellar in the fall, burns half a pound or more of sulphur in the cellar, to kill the mold-spores. Since doing so, his brood-combs never mold. In placing his hives in the cellar, the first hive is placed at an angle of 45 degrees, with the bottom of the back end of the hive resting against the side of the cellar, and the entrance toward the floor. The next hive is placed in the same position, with the back end of the bottom resting against the top of the first, and so on until a row is placed clear across the cellar. The quilts are loosened around the edges, and left on; then he lays a board on top of the first row, and proceeds to place another row on top of the board, in the same position as the first row, and so on until he has all the bees in that cellar he cares to put in—from 225 to 250, I think he said. He makes a compact body of them, and leaves them but a few inches apart in the rows. He leaves them undisturbed until setting-out time in the spring. The hives being raised at the back, the dead bees all fall out, and can not choke up the hive. He said he had wintered thus some 20 years, and is generally very successful. He closes up his house and cellar, as he winters in Florida. Thus he escapes our Northern winters. He is about 20 miles from O. O. Poppleton, in Florida. The doctor is a very methodical man, keeping a close account of all his incomes and expenses, and can tell each year just how much his bees net him. The past year he made his bees pay, as his honey brought him several hundred dollars. I do not remember the exact amount, but it was a fair income. I think he said he had two farms besides. He says he never bothers with small colonies, but tiers them up, putting one on top of the other, thus preventing increase also. He first began the study of the ministry; but as his health failed him he took up the study of medicine and then of bees.

I was pleased with most of the countenances I met at the convention. Intelligence beamed from many eyes—as much so as you would meet at almost any other gathering.

It was a real pleasure to see so many clean-faced young men, and clean lips not stained with tobacco, as so many of the young men of to-day are not ashamed of the tell-tale quid punching out in their cheeks. I was sorry, oh so sorry! to know that to such lips was offered the wine-cup that biteth like a serpent and stingeth like an adder.

PRACTICAL OR ORNAMENTAL.

At the tea-table one asked of another if the lady sitting at the further end of the table was a practical or an ornamental bee-keeper. The question was handled along from one to another until it reached Mrs. J. M. Null, of Miami, Mo., for whom it was intended. Her answer was, "If 6000 lbs. of extracted honey, taken from 114 colonies the past season, by my own hands, except an occasional day's work from a hired man, constitutes me a practical bee-keeper, then I am practical." She also stated that she purchased her own supplies, as her husband was very much afraid of bees, and had his hands full of his own work—proprietor of the Miami House, and owner of two farms. She said she became interested in bees by reading Gleanings, and bought and brought some bees home, placing them some distance from the house, as her boarders had great fear of bees, and were horrified to think of *her* keeping bees; but by and by, being emboldened at seeing her work with them, they would come so near that she had to tell them they might get stung, as they were trespassing upon the grounds of the bees. Her neighbors, also, were becoming more interested in bees.

A BEE-KEEPER WHEN HEDDON WAS A BOY.

A very intelligent old gentleman by the name of B. Taylor, who said he had been handling

bees some 40 years, often having as many as 600 colonies, exhibited a hive of his invention, worked on the principle of the New Heddon hive, only his is 14¼ inches wide, and 15 inches from front to rear, while Heddon's is 12⅜ wide and 18⅞ inches from front to rear. The hive is in two parts, as is Heddon's. He said he used that principle when Heddon was a boy, and before he kept bees.

One feature of the hive we liked much was the band to set under the hive in wintering, to raise up the frames one inch higher than in the summer, as that is what we practice in our own apiary, and it prevents the hives clogging with dead bees in the winter. I believe I shall like his double super too, as it will be so much lighter for me to lift when full of honey, as I nearly paralyzed my arms in the summer of 1889 by lifting honey and heavy hive-covers. I believe it would be wise, where men expect their women-folks to care mostly for any one apiary, to make all the supplies, hives, covers, and all, as light as possible, for this reason. Several of us lady bee-keepers there at the convention at once said that that was a woman's hive. I was delighted when I found he was going to present one of his hives to me. I felt it was of the Lord, to lighten my work somehow, not by discarding our hive, but by making it and its fixtures lighter. Yet I think I shall like the Taylor hive very much, so I transferred a colony of bees into it as soon as I came home, so as to be sure to have it there for next season's work.

He claimed for his double super, that, when the middle sections were filled, the super could be turned around, thus putting the partly filled ones in the center, and the filled ones on the outside; also, in putting on supers in the spring, rather weak colonies need have but one of them until they get well at work, and then the second could be added.

He is a very practical man, making all his own supplies, except where pine is used, cutting the timber from the tree, drying his own lumber, and manufacturing his own supplies; and, judging from the samples he showed at the association, of sections and hives, Mr. Axtell says his work was first class, as he says it was done as well as the sample shown.

Roseville, Ill., Nov. 26. MRS. L. C. AXTELL.

(To be continued.)

Mrs. A., I most heartily indorse all you say in regard to the convention; and I am exceedingly glad that you have got acquainted with our friend B. Taylor. If you have a colony already in one of his light shallow hives, we may expect you to give this form of hive a good practical test. I believe, with you, that the Lord has called you to investigate this very matter, with the end in view of making the work lighter for our women bee-keepers.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

DISPOSING OF THE WASTE PRODUCTS ABOUT OUR HOMES.

One pleasant thing about the business of market-gardening, either under glass or out in the open air, is that the market-gardener finds a *money value* in the very things that ordinarily are considered the greatest nuisances about our homes. We have already so thoroughly discussed the matter of disposing of sewage, night-soil, etc., that I need not go over the ground again. My reason for taking up the matter once more is, that some new experience has come to us. Some years ago, when I asked about the best manner of disposing of the products of the out-builbings around our homes, some of the GLEANINGS readers referred me to the Smead system of dry closets, etc. We have, at the expense of a considerable sum of money, just had our entire plant supplied with the Smead closets. As I have watched the workmen, and carefully scanned, scrutinized, and experimented with every feature of their invention, I think I can tell you all about it. In fact, the biggest part of it is using simple principles that we bee-keepers have already for years been thoroughly conversant with. Over and over again, through our bee-journals, has been described a plan of ventilating a bee-cellar by connecting it with the chimney of the house. A stovepipe goes from the chimney down close to the floor of the bee-cellar. The draft from the stove *pulls* up all foul gases and bad odors. Well, this is the Smead system. But he puts up a great chimney—in our case, 30 inches square inside. This goes up 12 feet higher than the highest part of the roof of the building. At the bottom of this chimney, or stack, is a furnace. Any place to build a fire will do. The more kitchen stoves, bake-ovens, and every other kind of stoves, you turn into this chimney, the better. Now have your closet right in your house, anywhere you want it—close to the kitchen stove or dining-room, or down in the cellar, or upstairs. Or, if you choose, you can have a closet upstairs and one downstairs, and one in the cellar. The draft from this big chimney of yours will pull every bit of bad air and offensive smell away so completely that your closet will be as sweet-smelling as your sitting-room or pantry. The Smead folks furnish iron seats, with an iron lid to shut down. This lid is hinged so it shuts itself when not in use. The floor is cast-iron. This is painted with asphaltum, so that it can be washed whenever it need be. There are many little holes in this floor. When washing, the water goes right down through these holes, and any bad smell there may be in the room is drawn at once through the holes in the floor. If you make a smoke in the room by burning some paper, the smoke and even blaze will at once shoot down through these holes in the floor; and if the cover of any of the seats is raised, a burning paper held near the opening will show that it draws like the door to your stove. Haven't we been stupid, that we never thought of this before? Now, if you still prefer to have an out-building, as most farmers do, make a brick or wooden chimney to this wooden out-building. Have it go so high that there will be a draft to it. Such an arrangement will make any ordinary out-building ever so much sweeter and pleasanter, even if you do nothing further. When you are going through the country on the cars, just watch the out-buildings as you pass by the homes of our people. You will notice that many of them have a ventilating-shaft already—in fact, almost all *new* ones have. But these ventilating-shafts are too small and insignificant. Let them go up a good deal higher, and make them a good deal larger.

Now for another matter: If you have practiced drawing away the night-soil on wagons and sleds, as we have done for years past, you have found out that it is a very heavy material to handle, besides being very disagreeable. Well, how large a portion of this great load of offensive matter do you suppose is made up of water? Suppose you evaporate the water so you have only the dry residue. Let me give you a statement that will astonish you. The whole amount of accumulation of a large

schoolbuilding, of several hundred pupils, during a *whole term*, was carried away on a *wheelbarrow*. The watery portion had been all evaporated by the hot air of the schoolbuilding, after it had done its duty in warming the rooms. Right under the seats of the closets, about two feet from the ground, is a series of iron bars. These bars are far enough apart to catch the ends of dry bricks laid close together. Of course, there is an air-space all around each brick. Well, the hot air, after it has warmed the schoolrooms, goes under and through this brick floor, keeping the bricks hot and dry. The droppings, both liquid and solid, are evaporated as they accumulate. If, however, in warm damp weather, when the furnaces do not need to be used, the ordinary draft of the shaft is not sufficient to dispose of all the liquid, a slow fire is made to send enough dry air through the brick floor and up the shaft, to keep the thing sweet and clean. By increasing the heat you may *cremate* the entire contents of the vault at any time you wish. A furnace is also put at the base of the shaft, to be lighted whenever the janitor notices, by the action of the smoke from burning paper, that there is not sufficient draft up the large chimney. In other words, whenever there is a particle of smell to be detected by the *keenest nostril*, a great flood of dry pure air is sent through the whole apparatus until every thing is dry, sweet, and clean. Now, then, has any thing ever been invented to compare with such a system of disposing of these waste products as the above? Of course, ordinary homes do not require such an elaborate structure in all its details as the one I have described; this is specially for schools, factories, court-houses, and such places. The only rival system is the water-closet. But what in the world are you going to do with the sewage in the average country town, school, or factory? Champion Brook runs right through our village of Medina; but the man who would turn the sewage from a water-closet into Champion Brook, above the town, ought to be prosecuted, and doubtless would be. We have read in the papers of the great troubles the managers of the Croton Aqueduct (that supplies the city of New York) have had to keep sewage from being turned into it. There has also been a little breeze through the papers in years past, to the effect that it is not safe to send all our bad smells up a big chimney to fall down on our neighbors after a while. It seems to me, however, the absurdity of this objection should be apparent at once. All our foul smells *are* and *always have been* turned out into the open air. Now, is it any worse to turn them loose in the wind at the top of a chimney *forty feet high*, than to turn them loose on a level with the ground? I have not yet been up to the top of our tall chimney to find out what kind of smells are pouring forth; but in any event I would much rather they would pour forth up there than anywhere else. In one of the basements of our establishment we have a kitchen where they cook dinner for the workmen—both men and women; and we have always been annoyed more or less by certain savory and unsavory odors from the kitchen coming up through into our office and other rooms. It has sometimes seemed as if this always happened when distinguished visitors happened to be looking over our premises. Well, since this great big chimney has been doing duty, our cook can have onions, doughnuts, or whatever she chooses, for dinner, and no one's nose informs him of the fact before he sits down to the table.

What has all this long story to do with gardening, do you ask? Why, simply this: The residue that has heretofore been such a terrible load to carry out on our fields, and plow under (*without a moment being lost*), is now simply a dry fertilizer like guano or dry poultry manure. It may be taken in the hands, or pounded up to be evenly worked into our plant-beds, just as we put in bonedust or phosphate; and the Smead folks say it is worth just as much in the latter form as it was in the former. I wish Prof. Cook and friend Terry would tell us what they think about this last idea.

Our Question-Box,

With Replies from our best Authorities on Bees.

Question 174. *What evidence have you had that bees are more likely to supersede a queen that is clipped?*

None.
Wisconsin. S. W. S. I. Freeborn.

None whatever.
Illinois. N. C. J. A. Green.

Not any. I don't think they are.
New York. C. G. M. Doolittle.

Not much when only a part of one wing is clipped.
New York. C. P. H. Elwood.

There is no evidence, and I do not believe that that tendency exists.
Ohio. S. W. C. F. Muth.

Not any. I have not the least idea that it is true with me, at least.
Michigan. C. A. J. Cook.

We used to clip the wings of queens long ago, and have never noticed that they were superseded on that account.
Illinois. N. W. Dadant & Son.

I don't believe that a queen will be superseded any quicker on account of having her wing clipped. We clip all of ours.
Wisconsin. S. W. E. France.

We have not practiced clipping; but bees have always evinced a disposition to supersede a queen crippled in any way.
Illinois. N. W. C. Mrs. L. Harrison.

The evidence that bees are not satisfied with imperfect, or maimed or crippled queens, as every observing bee-keeper knows.
Ohio. N. W. H. R. Boardman.

I have practiced clipping my queens for the past eighteen years, and I rarely have one superseded. I think there is no foundation for the belief that clipping causes superseding, providing the apiarist is on hand to take care of the clipped queens when they swarm.
Vermont. N. W. A. E. Manum.

I can't say positively; but, not having kept a record, it *seems* to me that there is more likelihood of being superseded when clipped; *but* I have had but little superseding done to clipped ones; for, unless extra good, I keep none over two years, and they are seldom superseded at that age.
Ohio. N. W. A. B. Mason.

I have no evidence to that effect. I do not practice clipping queens' wings, though I have done so in times past. When I did clip I was sure they lived to a good old age, and died full of honors.
New York. E. Rambler.

I have clipped my own wings from answering this question by not tolerating the practice. But, without much doubt, bees are guided mainly by smell in the matter of superseding queens. A good queen keeps the hive faintly suffused with the smell of fertility; and while this is the case they do not care how many legs and wings she chooses to wear, and would probably ask no questions if she got along without a head.
Ohio. N. W. E. E. HASTY.

The best in the world. When about half of one of my apiaries has clipped queens and the other half not clipped, their blood and age being the same, I found the most and earliest supersedures where the queens were clipped; and the tendency for swarms to reswarm was something like ten times greater where the queens' wings were clipped.
Michigan. S. W. JAMES HEDDON.

My two years' experience in clipping all my queens does not afford evidence of their being more readily superseded on account of being cropped. I once had an imported queen that had one wing off, one rear leg off, and foot off the second leg on the same side. I do not know how old she was when I got her, but she continued to lay to the fourth year as well as any queen I had.
California. S. R. WILKIN.

Nothing, except what I have read. I really don't believe it makes any difference. A good many years ago I saw in one of Mr. Root's colonies a queen with no vestige of a wing, looking like a big ant, and yet I think she had the entire confidence of the whole community. If supersedure comes from partial loss of wings, this total loss ought to have hastened matters. Did it, friend Root?
Illinois. N. C. C. MILLER.

Perhaps our good friends Boardman and Heddon, after seeing the array of heavy testimony to the effect that clipping makes no difference, may modify their decision, unless, indeed, they are of a class that never take any thing back, no matter how much proof is offered—which I am sure they are not. I have at times thought the bees seemed more disposed to supersede a queen with her wings clipped; but with these good friends of mine against me, I am quite ready to give up. I do not like to see them clipped myself, however; and a good many times something turns up to make me wish that a certain queen had wings. On this account I have recommended that they be not clipped any more in our own apiaries. I well remember the old queen that looked like a big ant, friend Miller, and I think we had her for at least three seasons, and she certainly did as well as any queen in the apiary.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

AIR-SPACE VS. PACKING; DOUBLE-WALLED HIVES.

Permit me to ask the following question: Are double-walled hives with air-spaces unpacked, as effectual in retaining the heat generated by the bees as they would be with those spaces packed? and would they be cooler, in summer, unpacked, than otherwise? I should like the replies of best authorities on bees through GLEANINGS. E. W. SMITH.
West Canaan, O., Nov. 27.

That is just what we want to know, friend S. The question was submitted in the Question-Box department, and a majority of the respondents voted in favor of packing as against air-space. The probabilities are, that any kind of packing beeween the two walls of a hive is better than none. However, for several years in our apiary one of our chaff hives which we supposed had been packed was found to have never had any chaff at all, when we came to renovate it of foul brood by boiling. This one hive occupied a conspicuous place in our apiary; and although it had only a dead-air space, it wintered just as well as the packed hives, so far as we could see, for a period of seven or eight years. How much longer it would have continued to do so I can not tell. In a moderate winter climate like ours, I am of the opinion that the air-space will do just as well; but in colder climates, no doubt packing is an additional protection. The W. T. Falconer Co., of Jamestown, N. Y., have for years sold what they call their Chautauqua hive. This, I believe, has no packing between the side walls. It is practically a hive with a dead-air space. We have had reports of comparative tests between this and our regular chaff hive, in which the bees seemed to winter about as well in one as in the other. Just now I do not recollect the exact latitude from which these reports were made. If any of our readers who are located in cold climates have had opportunities for making such tests, I should be glad to have them report. Henry Alley, in a recent article, said that the air-space did as well as packing in his locality, and we have had many reports to the same effect. This matter is of peculiar importance just now, on account of the discussion going on in regard to an outside protecting shell for winter; for if such a case, without packing, in most localities, will winter successfully, it will be a great saving in the cost of hives in outdoor wintering. Do not understand that I say this *can* be done. I am only awaiting the results of experimental tests by ourselves and others. E. R.

DOES COMB HONEY EVER TURN YELLOW?

We notice the comb honey we received from you in October is turning yellow, which makes it unsalable. Please advise us what to do.
Massillon, O., Nov. 29. DIELHENN BROS.

I have never heard of such a thing before. Is it not possible that you are mistaken? We have the same honey in stock, and ours has not changed a particle. I have heard of setting yellow comb honey in the sun in a window, and that the sun would bleach it so as to make it whiter. The honey you had was some of Mr. W. K. Ball's, which we have regarded as so very fine. Some of his comb honey had yellow cappings, and some white. To make it fair,

the sections were mixed together, the quality of the honey in either case being the same. It is quite possible that you first removed the sections of white capped honey by accident, and, later, pulled out some with darker cappings. In any event, the white capping should not turn yellow in so short a time out of the hive.

WHAT IS A "HONEY-QUEEN"?

I should like to know what is meant by a honey-queen, as I have noticed advertisements in GLEANINGS where they have stated that they have such for sale. C. A. DICKMANN.

Gehm, Mo., Nov. 24.

What we mean by honey-queens is queens whose progeny rather excel in honey-gathering qualities, their color and that of the bees being secondary, although showing at least three yellow bands. Honey-queens that are sold are raised from some queen whose progeny has excelled the others in the apiary for real work. It is possible that the bees of such queens may not duplicate those of their mother; but as they are bred from that sort of stock the chances are pretty good.

THE COLUMBIAN FAIR.

We take pleasure in copying the following from the pen of Dr. A. B. Mason, as it appeared in the *American Bee Journal* for Nov. 29:

Friend Newman:—I sent a portion of my address, read at Keokuk, to the Director-General of the World's Columbian Fair, and a part of the reply, received yesterday, reads as follows:

In response, I have the honor to say, that at the present time it is not possible to give you definite information as to the plan of organization of such a department, futher than to say, that the bee-culture industry will be amply provided for in the classification of exhibits. Your letter will be filed for consideration at an early date when this subject is acted upon.

I remain yours very truly,
GEO. R. DAVIS, *Director-General.*

I should like to suggest that the President or Secretary of each State Bee-Keepers' Association let me know, at once, about the amount of space the bee-keepers of their State will be likely to want at the Columbian Fair.

I expect to ask for about 3000 square feet of space for Ohio; and if the other States that should exhibit will do so in proportion, we shall need from 100,000 to 150,000 feet of space, and will "astonish the natives" with the magnitude of the display.

In a "P. S.," Gen. Davis says: "We will soon send you classification and application for space," so it will be seen there is no time to lose.

Let each State society at its next meeting choose a committee to have charge of getting up the State exhibit, and the securing of an appropriation by their next Legislature to defray expenses, for it will take money to make a creditable display.

If any should write me for any information they will do me a favor if they will inclose one or more stamps for a reply; and then be *sure* to sign their name to their letter. Yours truly,
A. B. MASON.

INCENDIARIES IN THE HANDS OF THE LAW.

Mr. Root:—I am glad to inform you that I have succeeded in arresting the boy who set fire to our shops last spring. There were two of them. One is now at the State Industrial School at Waukesha. He made a full confession; and as soon as the other boy was arrested he also confessed, telling the same story as the boy at Waukesha. They say they simply wanted to see a great fire. One is eleven years of age, and the other thirteen. I am very glad to know how the fire started, and to know it was not done through any enmity.

Watertown, Wis., Dec. 4. G. B. LEWIS & Co.

We are very glad indeed, friends, to know that you have got hold of the culprits; yet it seems a sad, sad thing to find that boys only eleven and thirteen years old are abroad in our land who can be guilty of such a terrible crime. Surely these boys have been neglected. My first thought was, "Were they in the Sunday-school and in the day-school?" Do they have laws in Wisconsin compelling people of that age to get an education whether they will or not? We, too, rejoice to know that it was not through any jealousy or envy at your success as business men.

THE DOVETAILED HIVE EASY TO SET UP.

The Dovetailed hives, etc., have been received in good order. I think I shall like them better than the Simplicities, because they are lighter, cheaper, and easier to set up.

BISULPHIDE OF CARBON FOR ANTS.

I notice in Nov. 1 GLEANINGS that Mr. W. F. Elliott, of Clio, Tex., desires a remedy for red ants. Let him try the bisulphide of carbon, so often mentioned by Prof. Cook. Directions: Pour about a pint into the hole; cover for about a minute, then explode the vapor that has formed, by burning a rag tied to a stick, and close up the hole air-tight. They call it ant-poison here. It is excellent for killing night, or cutting ants.

JAPANESE BUCKWHEAT.

In spring I sowed 5 lbs. of Japanese buckwheat on about $\frac{1}{8}$ acre of rich land, from which I harvested 3 bushels. September 12th nearly a peck was sown on the same ground, which yielded almost four bushels. The bees worked on it in great numbers in the morning.

Yorktown, Tex., Nov. 29. R. WESTPHAL.

WARRANTED QUEENS.

1. If a queen-breeder guarantees or warrants untested queens purely mated, and some of his queens sent out should show two and three yellow bands (no black bees at all), would such queens be called mismated? 2. Should such queens be replaced, under above conditions?

High Hill, Mo., Nov. 3. J. N. S.

Yes, to both questions, most assuredly. Unless a queen produces *all* three-banded bees, she is mismated. See our A B C book.

STRAWBERRY-GROWING IN FLORIDA.

Friend Root:—I would say, in reply to your comments on my letter in the Nov. 1st GLEANINGS, that the berries bear only one season, and are then turned under, and young plants set again. The long bearing season exhausts the old plants so that they are of no value for another crop. I have never had berries for Thanksgiving or Christmas, but for New Years day we have had them. We have Jessie, Bubach, Indiana, and Nunan—the latter the main variety planted in Florida—all growing finely; and to-day we are having a steady rain that

will make it a Thanksgiving day for all vegetation as well as human kind, as we have had none for a month. H. G. BURNETT.

Avva, Fla., Nov. 27.

STRAY STRAWS.

EDITED BY DR. C. C. MILLER.

Mice make mischief many times in the cellar. If they would only eat what honey they want it wouldn't be so bad; but they destroy so much brood comb. Latterly I keep them out of the hives by covering the entrance with wire cloth, three meshes to the inch. It keeps the mice out without shutting in the bees. I like it.

REVERSIBLE BOTTOM-BOARDS.

After a trial of more than a year these prove quite satisfactory to me. They were less troublesome to reverse this fall than last, because the hives were not out of square. I'm sure that a two-inch space under the bottom-bars is a good thing.

CHAPMAN HONEY-PLANT SEED.

This is yielded in good quantity, and is said to contain much oil. I picked some heads and threw to the chickens. They wouldn't touch it. Then I picked out some seed looking like grains of rye. They ate these readily, and some of them then began to eat the seed with the hulls on. Could this seed be profitably raised for chickens?

B. Taylor, Forestville, Minn., has the laugh on me. The little sticks between sections that I paraded as my own "git up" were shown to me by him in Madison last winter. My "forgetter" was in good working order.

Hon. R. L. Taylor is an exasperating customer. In his President's Address he spoke of the "fact" that honey "may be kept in perfect condition from one year to another," but didn't tell how. I wrote, challenging him to tell. Back comes a postal, saying, "I have kept honey over in perfect condition, and it sold without question at the same price as new honey, and it was really decidedly better," and a few words of sauce, but not a word about the "how." If comb honey is meant, I have known of only two or three cases of keeping over in good shape, and that on a very limited scale. Whether he has a different or the same plan, it is important to know about it, and Bro. Taylor is not the sort of man to make a statement without solid foundation. Let's make him tell or put him out.

The papers now have an imitation of comb so natural that the bees themselves are deceived by it, and *eat it* in winter. Next!

Years ago a bee-keepers' department in an agricultural paper was a rare thing. Now it is common. The busy bee has buzzed itself into notice.

INTRODUCING QUEENS.

Joshua Bull, in the *Api.*, says that for years he has had complete success in introducing queens, provided there was a virgin queen in the colony to be operated on. All that is necessary is to remove the virgin, "and immediately let the laying queen loose upon the comb right among the bees."

Got caught, didn't you? The weather stayed pleasant so long, that, when the cold snap came on the first of December, there were things still undone that you expected to do before the freeze-up. Weather always does that way. Look out next time.

Temperature in the cellar is important. The general agreement seems to be that 45 degrees is about right; but don't you depend entirely on that. Cellars differ. Thermometers differ. Hives differ. Take 45 for a starting-point, and then find whether your bees are any quieter above or below that.

I believe my bees are better off above 45 rather than below, in the cellar.

Editor Alley is a law unto himself in a good many things. He's generally emphatic in whatever he does. He is very emphatic in the December number in mixing up the editorial "we" with the common, every-day "I," changing from the one to the other with a recklessness very refreshing, ending up with "I regret we." All right, friend Alley. The "we" business is becoming antiquated.

Don't you wish GLEANINGS would come once a week, especially in the winter? Well, the next best thing, if you do not already take them, is to take another of the bee-papers. There are several that I shouldn't like to be without.

Have you ordered all the supplies you need for next year? You'd better. If you wait till about the time you need them, you may be delayed, and now you may get a discount on them.

Last summer when work was crowding, you and I had hardly time to read the bee-journals, and sometimes could take time only to glance through them. Wouldn't it be a good plan to read them all over this winter?

Some editors think they know every thing. They don't. Most of them don't think so. They are always glad to get suggestions from their readers. I am reminded of this by friend Root's request that patrons offer suggestions to make his catalogue more helpful and convenient. So it will be a good plan, if you think of any thing that would improve a bee-paper, to write the editor about it. But don't get mad if your suggestion is not followed. In nine cases out of ten there are good reasons why it should not be.

Think of comb honey being "wanted" in San Francisco at 13 to 14 cents a pound. But it seems to me it hardly goes up in proportion at the North.

Will honey drop in price about the first of January? Usually it does. But one year, when it was hardly as scarce as now, it kept going up till late in spring.

I am reported as saying at Keokuk, that the large black ant will not honey-comb bottom-boards if they are kept off the ground. I don't know whether I said just that, but I know I didn't mean it. I am not sure that they will trouble if the bottom-board stands directly on the ground. The worst trouble seems to be where the bottom-board stands flat on another board. The ants seem to commence work between the boards. I think they will not trouble if nothing touches the under side of the bottom-board only around the edges.

The Honey Column in GLEANINGS is good, all but where some one says, "Prices remain unchanged." It isn't pleasant to be obliged to look back one or more numbers to see what the price is.

I wish I could get my bees trained like Manum's to put off the brace-comb business till fall. Mine seem to be just as bad early.

Oh, but ex-president Taylor will feel conceited when he sees his picture in the report of the Keokuk convention!

"Volunteer Contributions" appears in two programmes that I have seen. That may be all very well for a little while; but some of these days somebody will wish that "Volunteer Contributions" had never been born.

Jones protests against the last part of foul-brood treatment given in Mr. Pringle's Keokuk essay. He says it isn't safe.

MYSELF AND MY NEIGHBORS.

Not by might nor by power, but by my Spirit, saith the Lord of hosts.—ZECH. 6:4.

Dear friends, this is my closing talk for the year 1890. The question has been on my mind for some days, "What shall be the last thought of the year? What subject is of most moment and most importance just now, to the readers of GLEANINGS?" A very kind letter from a friend who furnishes me some valuable facts in regard to artesian wells, furnishes me my subject in these closing remarks. It is as follows:

Friend Root:—I was surprised at your reasons for giving money to a railroad company. What does the Scripture mean when it says, "He that giveth to the rich shall surely come to want"? If the railroads of this country are not rich, then I don't know as much as I thought I did. One can walk cheaper than to ride on a railroad. To make a long story short, hey are robbers. I have often wondered what kind of people the Nazarene was speaking to when he said, "My Father's house shall be called a house of prayer; but you have made it a den of thieves." I trouble you with this, because you are one of a few that desire to do what you can. We here in South Dakota can see that capital and labor will clash unless the difficulty is settled by ballots. There is a party here, six months old, called Independents, who will always be "independents," in my opinion.

De Smet, S. D., Nov. 18. S. L. R.

Had the above come from only *one* correspondent, I should not have thought much about it; but I see the same spirit in other letters, and here, too, among my *neighbors* in Medina. I find it in the papers that are scattered so freely throughout our land. Perhaps the railroads are not very often so strongly condemned as in the above, but yet there is more or less of that sort of feeling prevailing. Our friend is evidently looking toward legislation and the ballot to right his wrongs. Well, there may be something for American people to do in that line; but it is so much out of my department that I will not even try to touch upon it to-day. The great thought that comes to me, and lies heavily upon my heart, is, that Satan is constantly entrapping us by persuading us that our neighbors are *all* evil; and especially has this thought got into the heart of the *laboring classes* toward those who wield the *capital* of our land. Dear friends, I am sure that capital and labor should go hand in hand, just as a husband and wife should go hand in hand. I am sure that God has intended that capital and labor should be *wedded* together. Their relations should be kind and loving ones. Each should seek to assist and aid the other—or, as is said in one text, "In honor preferring one another." The husband should make it his constant study to assist and help and please his wife; and she in turn should make it her constant thought to minister to his comfort, each one setting aside self for the good of the other. Now, when capital and labor can be doing just this, then shall we have a millenium here on earth. But doubtless many of our readers will say, "Capital has not done this, and does not propose to do it. Capital is the *stronger* party, and labor the weaker one. Labor always has submitted—at least almost always—and you would recommend, Bro. Root, that labor *still* submit." No, I do not. I know capital has a seeming advantage; and I know, too, that capital has been, in some cases, very lofty, overbearing, and unfeeling. In the very same way, many husbands, by their superior strength, and perhaps greater knowledge of the world, and possibly greater mental force, have the advantage, and in a brutish, selfish way, propose to keep it. Both pictures are sad ones. Where is the remedy? I should say, dear friends, before we try legislation or the ballot—that is, before we rely entirely upon these agencies—we should look into our own hearts and see that *they* be right; be sure they are in fighting trim. You know what I mean by "fighting trim." The fighting to be done is in the line of the text I have chosen at the head of this talk—"Not by might nor by power, but by my Spirit, saith the Lord of hosts."

Let us take our friend's letter in order. First, he expresses surprise that I should give *money* to the *railroads*. Why, dear friend R., it is these same railroads that are revolutionizing the earth. Without the railroads *you* could not *live* where you are now. Without them we should be in barbarism, as other nations are now, and where they must stay until railroads can let the light of civilization shine in upon them. It is the railroads that enable us to live in places where famine and starvation would be constantly recurring without them. See the examples in the Old World. For want of railroads the inhabitants of China, in certain districts, are starving to death by the *million*. A former pastor of our church is now in China. He told us of a railroad that was built in China some years ago. The Chinese let the same bitter spirit enter their hearts that now and then comes into the hearts of our people here at home, and they tore the railroad all up—demolished the locomotive, tore up the track, bent the rails, and then—well, what then? Why, they *starved to death* during poor seasons, just as they have been doing for centuries past! Dear brother, you do not give the whole of that beautiful text from Proverbs, about giving to the rich. The whole verse reads, "He that oppresseth the poor to increase his riches, and he that giveth to the rich, shall surely come to want."

You will notice the starting thought—in fact, the leading thought in the verse is, "He that oppresseth the poor to increase his riches." Then follows the other part of the figure in regard to him that should favor the rich. That is, if a man wanted some work done, and instead of letting a *poor* man do it he should give the job to a *rich* man, such a one shall surely come to want. Is not my construction right? You think that I gave to the *rich* in giving to the railroad. Why, dear brother, it is my own friends and neighbors who are building that railroad. The prime mover in the whole project is a little energetic, wiry man who lives in a neighboring town. He has been working for an east and west railroad for all of five or six years. He got it started and under headway some years ago; but one disaster after another snowed him under, and we supposed he was hopelessly ruined. He kept at the work, however, winter and summer. Just before we got the road under way I laughingly told him that, if *anybody* deserved a railroad, he did, in answer to his indefatigable industry and perseverance. He told me confidentially that, if it failed *again*, he would be hopelessly ruined, and we, *too*, would have our chance of getting an east and west railroad, as an outlet for our increasing business, for ever lost. At one of our railroad meetings it seemed as if the project must be given up. The people began to lose heart, and go home. Then I stepped in and gave them an exhortation, and made some rash promises, as some of my friends thought—something like matching every subscription that would be made during the remainder of the evening. They rallied, and came back; and we got so near the desired goal that night that the railroad took a fresh start and went ahead. Railroads and printing-presses, dear brother, follow in the wake of missionaries, as you well know. It is true, many vicious and profane

men are engaged in building and managing railroads; but for all that, they carry the gospel of Christ Jesus everywhere they go.

You declare that the railroads are rich. Are the railroads of our country *all* rich? Why, dear brother, they must have *capital*, or they could not exist. But look about you, and see how many of them fail to pay expenses, and go into the hands of a receiver. Such a thing has happened twice to the only railroad that has been in our town for the last nineteen years, and yet you call them "robbers," and others say these companies have *no souls*. To whom do these expressions refer? They must surely refer to somebody. Is it the engineer, the conductor, those who handle the freight, or is it the president of the road and the stockholders? I am somewhat acquainted with these individuals on our road. Some of them are professing Christians, and good men; others are not, just as in all other avenues of life. We are seeking, however, to bring them to Christ Jesus. Shall we do it by calling them robbers? In another column, Dr. Miller has alluded to the stubbornness of the railroad officials in regard to giving us reduced rates to the cenvention. I have in my possession two very kind, gentlemanly letters from railroad officials explaining why they could not give us reduced rates. They have learned by past experience that the attendance is *too small*. We all know that the attendance at our national conventions is not what it should be. In asking them to give us reduced rates it is something like having a neighbor want you to come in from the field to weigh him up *half a pound of honey*. If you have ever had to do that very much, you have learned that you can not stand it, especially when time is valuable. If you call a neighbor a robber, and tell him he has no soul, you are taking the very *shortest cut* to make him a robber and a soulless knave. By such treatment you may make him so ugly that he loses his ordinary good sense and sense of justice. What does our text say?

Do you really think that Jesus had in mind our *railroad* men when he spoke about making the house of prayer a den of thieves? It was on only one occasion that he used such words as these. The traffickers had invaded the house of God, and used it as a place to drive their sharp bargains. On such an occasion our Savior took upon himself the responsibility of reproving them and turning them out. When our railroad men go into God's house, they are surely as well behaved as other people; and when it comes to the contribution-box, they usually give liberally of their possessions. Many a church is indebted to some railroad man for its foundation, and may be something more. In California the railroad companies are so firmly convinced that the house of God is a symbol of prosperity that they build beautiful churches outright; nay, more. Whencit comes Sabbath-day they are on hand with their families, and they set a good example to many of the inhabitants of a *farming* community. It is true, when asked if they were members of the church, many of them would say, "Oh! my wife belongs. She sings, and reads the Bible while I listen to the sermon and help pay the running expenses." My friend, the latter is not *all* we could desire, but it is enough for us to be thankful for. Let us pray and work in the spirit of our text, and we have God's promise that the rest shall come.

Friend Terry is at present staying at our home. We are having a two-days' farmers' institute. Yesterday he told us in his talk of a place in the western part of Ohio where butter is selling at 10 cts. a pound. He examined some that a farmer brought into the store, and he said it was every bit as good butter as he pays 25 *cts.* a pound for in Hudson, O. In fact, he gave $25.00 for 100 lbs. of such butter. He ate the butter at the hotel tables, and the landlord assured him that he paid only 10 cts. a pound for it. Now, what does this mean? Bee-keepers have complained of such a state of affairs in regard to honey; but so staple an article as *butter*, and butter of fine quality—why, I was astonished. How does it come? This way: There are no railroads there to equalize prices. Perhaps the people have not enterprise enough to demand one, and to go to work and build it as we did. Another thing, the producers are small farmers, with a few cows apiece. The amount of butter they make is so trifling that they do not inquire into it. They do not read the quotations in the city papers. Very likely these men who sell their butter for 10 cts. a pound sit around the stove in a country store, and call capitalists soulless robbers. What shall they do? Why, bless your hearts, dear brothers and sisters, they should make a little "trust company" of their own, if you will excuse the expression. Yes, call it a "ring"—they need a ring to defend themselves, and they need to work in a brotherly band. If a ring means a brotherly band, then I am in for rings. This little brotherly band of farmers should pack their butter all together, each man putting his name on his package, and send it to some commission house in the nearest large city. Think of the difference—10 cts. and 25 cts., for a staple article like butter! Now, nothing but railroads can cure this state of affairs—railroads and the right sort of spirit between the small farmer and the railroad officials. You and your neighbor need not be at swords' points because you are a day laborer living in a little rented house while he lives in a fine mansion. Your relations may be of the most friendly nature imaginable. He may help you, and you may help him.

If any one will take an unbiased glimpse of the great industries in progress at the present day, I think he must admit that the only possible way to accomplish many things is by combined capital, and by forming great companies. You may call them "trusts" and "rings" and "monopolies," if you choose; but they are really a necessity of the present age. In our talk at the institute I have mentioned, the Hon. Thomas B. Palmer gave us a history of the attempts that have been made, not only in Ohio, but in other States, to improve our country roads. That we might do this intelligently, many good public-spirited citizens labored hard to change the existing state of affairs, and even laws were passed in some sections to have the road-tax paid in *money* instead of *day's work*. This money was to be used by competent engineers and mechanics in making *permanent* roadways. Many of you know that the labor and money expended in working on the road, especially in clay soils, does no *permanent* good. In front of our residence and factory, the travel last winter crowded the clay all out of the roads, and almost up on to the sidewalks, until the center of the road became a filthy, reeking pool of mud. After long delay in the spring until it dried off, our road-makers scraped the clay up in the center again, and rounded it up nicely, and during the summer we had a very fair clay road; but during the two rainy months of October and November, the travel pushed the clay out into the ditches again, and the road is now about as bad as before. All the labor of packing it up amounted to nothing except a temporary gain, lasting a few months. Now, this kind of work has been going on for *thirty or forty years* in many districts. Enough labor and capital have been expended to have

made a macadamized or stone road that would last for years. This matter was presented again and again to the farmers, but they united almost in a body and rejected it. They wanted to stick to the old way of each one working his road-tax, and they carried the day. *Public opinion* was so against the law and the law-makers, that it amounted to nothing, and the law was a dead letter. Are the farmers helpless? are they the *slaves* of capitalists and politicians? They certainly were not this time. In our town we have a beautiful stone road from the depot to the court-house; but we had to fight hard to get it, and it was *not* done by each man putting in a day's work. It was done by the town council. Said our honorable friend in his speech, "My good friends, how long it would have taken to build your stone road from the depot to the court-house had you depended on each man working out his share of it? Why, the *first* stone would have worn 'clean out' before the *last* one was laid!"

Now, this is true; and combination and capital is the only way to accomplish even a little enterprise like the one I have mentioned. The irrigation in California, that has transformed a desert into the most productive land that the world has ever known, is the result of combination and capital. So it is with the railroads, with our factories, electric lighting, our great steamboats, and almost every thing else. There is no other way. Are all these men who are engaged in these things, who wield the capital or who hold the offices with high salaries, *bad* men? By no means. The more I become acquainted with them, the more I feel ashamed of myself for having misjudged them in former years. I can well remember when I used to feel bitter toward our banks and our moneyed men because they would not lend me money without proper security. Why, they did me a *positive kindness* in making me submit to ordinary business rules and regulations. *Bankruptcy* and the *penitentiary* are oftentimes the result of letting somebody have money by mistaken kindness, when he ought *not* to have it.

We are tempted to criticise and find fault because we do not *understand* things. Some one of our neighbors is lucky enough to get a position where he gets a salary of two or three thousand dollars a year. The temptation is great for the less fortunate ones to say that he got it by wire-pulling or by fraud. Such may be the case sometimes, but I do not believe it happens very often. The chances are greatly that he has worked hard (or *studied* hard, if you choose) until he was fitted for the position and deserved it. I have been watching this thing carefully for years. At the present time, while hundreds are applying for something to do, we are sadly in need of a man or woman worth one or two thousand dollars a year. Now, none of you need apply because I say this. There are no such people on the market. *Others* besides *ourselves* are needing them. There are *good* people, mind you, *plenty of them* —people well educated, and with experience; people who are honest and true, and who will do their very level best, but not people who have worked hard, who are broad and deep enough to see what our nation wants, and who have the *ability* to direct a lot of men and women, or a large business. Such people do not grow themselves. They must be *made* to order, as it were; or, perhaps, better still, make *themselves* to order; and when they are made, *everybody* wants them. Some very good friends of mine have tried to fill these positions. They have been very confident and sanguine, and they have been true and Christianlike enough to admit, when they found the work was greater than they could manage, to say so, and step down and out. Now, when one *has* the ability to fill these places, for Heaven's sake let us beware how we let envy and jealousy get into our hearts. Let us beware about speaking unkindly or spitefully of him.

Now, friend R., please believe me when I tell you that the men who manage our railroads successfully are the kind I have been describing. When they are opposed by laboring people who will not take the time to inform themselves in regard to these matters, they get in the habit of being short and perhaps overbearing in their answers, for they are by no means perfect in *all* the Christian graces. I do know this: That, when the managers of a railroad find out that a man is disposed to be fair and honest, and does not try to gouge and cheat them whenever an opportunity happens, they are very fair and liberal with him. It gives me pain when I hear the expression to the effect that railway corporations have no souls. It is true, it is not exactly like dealing with any *one* man. But this corporation is made up of a number of men—made up of our neighbors, and the fact that they feel hard and indignant, and many times bitter and ugly, when these things are flung at them, shows they recognize the insult is intended for them, and they often resent it, as you, my friend, would resent an insult. I do not mean to say there are no wrongs that should be righted; and this organization that our good friend calls the Independents may be the right and proper way, providing it works in the line of our text—"Not by might nor by power," but by the spirit of Christ Jesus, remembering that we are constantly dealing with our *neighbors*, and that kindness and brotherly love—perhaps I might say *neighborly* love—will accomplish what bitterness and spite can never do. Our farmers and laboring classes are by no means helpless. I have given you an illustration where they conquered, and had their own way, even where they were in the *wrong*, and the law-makers in the right. If our rural neighbors can carry the day when they are in *error*, who shall say what they may do when their cause is *right* and *just?* Perhaps some of you say, "Why, Bro. Root, how do you *know* we are in the wrong? If we want to make our roads as we have been doing for fifty years past, by scraping the clay up in the center, and letting it flat out again in the winter time, is it not our privilege?"

Well, this may be open to discussion; but I do not think it *is* your privilege. You are in duty bound before God and your fellow-men to consider the good of the people at large, and the good of the people who are coming after you. You have no business to waste valuable strength year after year in something that does no permanent good. You have no business to wear out your horses, and keep your wife and children at home when they might spin over good roads to come to town and attend farmers' institutes, to go to church and Sunday-school, etc., just because you are too lazy, or too little and stingy and mean, to employ competent men to make some *good substantial roads*, just as you would employ competent men to make good substantial houses and barns. I hope this latter clause is in the spirit of the text at the head of my talk to-day. If it is not, may God give me grace and wisdom to see my *own* want of charity.

You know how badly *we* have felt because the great outside world would have it that our honey was all manufactured, comb as well as extracted, and how reluctant our friends and neighbors were to let go of the silly falsehood. Well, now, I am sure that we on *our* side are doing something of the same kind when we accuse those who handle the large commodities of

life, of forming trusts and rings, and the like. Remember what a great stir was made about the trust on binding twine. Well, I took the pains to read up on the subject, and I became perfectly satisfied there was no trust at all, and *never had been!* The sudden demand for twine for binding grain brought about the very state of affairs that comes now and then in every product. Why not accuse the farmers of having made a trust on potatoes that makes them worth *35 cts. a peck* to-day in Medina? Friend Terry has been at our house for two days, and I discussed the whole matter with him most thoroughly. He agrees with me exactly, and, furthermore, says that he believes that even the *Standard Oil Company* has been a blessing to the world at large. He says he believes we get better oil, and at a lower price, than we ever should have had it without them. Now, we may not all exactly agree with him; but yet his charitable feeling toward all these great ndustries keeps him constantly in a happy frame of mind. The first day of our institute he talked three times, and then again in the evening; and he is going over the whole State of Ohio this winter, doing almost the same kind of work every day. What he contributes to the agricultural papers is written between times. I fear his health will never stand such severe mental labor as he is doing; yet he is doing it out of love to our people, and because he hates to see our Ohio farmers waste *strength, energy,* and *intellect* in fighting the many things that are like bogus comb honey—things that *never had an existence* at all. I hardly need tell you that friend Terry stands alone by himself, so far as any *ring* or *combination* is concerned. He is in daily, constant intercourse, not only with the *farming* people, but with our great leading *capitalists.* He has ample opportunity, and no doubt many *invitations,* to use his great and increasing influence to favor different selfish projects; but may the Lord be praised for the fact that money can not buy him—no, money can not swerve him a *hair's breadth.* Can I say as much for you, and *you,* and YOU, my friend? If so, then I can say again, "May the Lord be praised." You are just what our country stands greatly in need of.

And now, dear friends, permit me to close my exhortation to you for this time with a little bit of that beautiful chapter in I. Corinthians, the 13th. If you should see how fitly it applies to the case in question, and feel a desire to read more of it, and should take down the family Bible and read the *whole* chapter to the good wife and children, I shall be happier still; and may Christ Jesus bless all these talks for the year past; may the influences of the Holy Spirit so bring them home to your hearts, that you can enter the year 1891 with a broader charity toward all the world, and especially toward our great corporations of which we have been speaking, than you have had before. May you not only have a broader charity, but may you have a happy and willing spirit, thanking God for the chances he has given you to make your way among the crowd; and may you have grace to get a glimpse of the kind and loving spirit that surely *does* exist *somewhere* in the heart of every neighbor round about you, whether he be rich or whether he be poor. Here is my extract:

Charity suffereth long, and is kind; charity envieth not; charity vaunteth not itself, is not puffed up, doth not behave itself unseemly, seeketh not her own, is not easily provoked, thinketh no evil; rejoiceth not in iniquity, but rejoiceth in the truth; beareth all things, believeth all things, hopeth all things, endureth all things.

EDITORIAL.

A soft answer turneth away wrath; but grievous words stir up anger.—PROV. 15:1.

SUGAR FROM BEETS VS. SUGAR FROM CANE.

PROF. COOK says there is no difference whatever. See his article on the subject, in our next issue.

THE SMEAD DRY-CLOSET SYSTEM, AND THE VALUE OF THE RESIDUE.

SINCE the close of the article on page 898, I have conversed with friend Terry and also with one of the Smead people. Mr. Terry says he would consider the dry residue of just as much value as to carry it on the ground with so large a quantity of water. The Smead folks tell me the customary way of disposing of the product is to pour on a little coal oil and set it on fire. It will all burn to ashes, without any residue, and it may be burned up once in three months, once n a year, or once in two years, as the owner chooses. The vault of the closet is built of brick and iron bars, so that there is nothing to be endangered while the burning is going on. The smoke and gases go so promptly up the shaft that nobody will know that the contents *are* burning.

LIFE-MEMBERSHIP IN THE N. A. B. K. A.

NEW life-members are being continually added to the roll, and so far we feel very much encouraged; and if this membership is to continue at the present rate, we shall keep on harping until the list is swelled to a respectable size. Up to the date of the meeting at Keokuk, these two were the only life-members: D. A. Jones, Beeton, Ont.; Thomas G. Newman, Chicago, Ill. The following is the list of names that have been handed in since, in the order of their receipt: A. I. Root, Medina, O.; E. R. Root, Medina, O.; J. T. Calvert, Medina, O.; Charles Dadant, Hamilton, Ill.; C. P. Dadant, Hamilton, Ill.; Eugene Secor, Forest City, Iowa; Dr. C. C. Miller, Marengo, Ill.; O. R. Coe, Windham, N. Y. We trust that every beekeeper who is interested in the highest welfare of his pursuit will at once send his name to the secretary, Mr. C. P. Dadant, Hamilton, Ill. If you are unable to pay the amount now he will charge the same to you, and you will then be enrolled in the list as above. The above makes ten names, and all that has been paid in is invested and drawing 6 per cent interest.

REPORT OF THE N. A. B. K. A.

THE 21st Annual Report of the North American Bee-keepers' Association has just come to hand from the publishers, Messrs. T. G. Newman & Son, Chicago, Ill. As usual it is well and neatly printed, and substantially bound in a tinted-paper cover. One thing we notice in particular in regard to this report is, that it is nearly twice as large as any other report of one

convention. The Keokuk report occupies 50 pages, the size of this; the one at Columbus, 26 pages; the one at Brantford, a year ago, 28 pages. Every member will have a copy of the last report, and a good many who are not members should have it. Price 25 cents each, or to members free. Apply to Thos. G. Newman & Son, as above.

BEE-KEEPERS' ADVERTISER.

The above is the caption of a circular and pamphlet of instruction issued by Henry Alley. In regard to the bee-keepers of York State and the closed-end frames which they use so rapidly and easily, as mentioned by the writer in his recent visit, Henry Alley says: "There, friends, I told you these same things a good many years ago, and not only pointed out to you the advantages of the closed-end-frame hive, but offered for sale one of the best hives now in use. Now that this subject is opened up anew, I have no doubt that thousands of bee-keepers will adopt closed-end frames." The circular can be obtained free of Mr. H. Alley, Wenham, Mass.

COMMON SALT AS A REMEDY FOR FOUL BROOD.

One of the bee-friends takes us to task for dismissing the above rather too briefly—see page 822. Our reasons for so doing were these: During the whole time that foul brood prevail-in our apiary, we used salt in front of the hives for keeping down weeds. Whenever there was a rain or even a heavy dew, the bees could be seen in the sawdust around the entrances, helping themselves to salt water to their hearts' content. Secondly, Prof. Cook or some one else has reported testing the matter, with scientific exactness, and the salt water had no effect whatever on the foul brood. We are quite willing, however, to reconsider the matter when any thing positive can be brought forward.

KIND WORDS FROM OUR CUSTOMERS.

THE PAPER-WEIGHT.

I can hold it in my right hand and scratch enough geometry in my head with my left to last two weeks. It is very pretty. WALTER S. POUDER.
Indianapolis, Ind., Oct. 2.

THE NEW DOVETAILED HIVE.

In the new Dovetailed hive, with Hoffman frames, described in Nov. 1 GLEANINGS, you have given the fraternity, I think, a perfect hive, and one which is destined to become immensely popular.
Lexington, Ky., Oct. 31. JAS. ERWIN.

The honey I ordered came to Newburgh yesterday morning I find it just as you described, almost as white as water, and of very thick flavor. I am well pleased. Freight was 50 cts. I presume it would have been no more on twice the amount.
Cleveland, O., Oct. 29. E. HANCHETT.

OUR 15-DOLLAR SEWING-MACHINE AS GOOD AS ONE COSTING THIRTY.

I received your sewing-machine in good order, and I am well pleased with it. I could not have got it any less than $30.00 around this part of the country, and it sews just as well as the $30.00 ones. It sews any kind of cloth. MRS. JEAN BONNAT.
Coultersville, Ill., Nov. 10.

HONEY ALL SOLD—AN ADVERTISEMENT THAT PAID.

Please stop my advertisement in the Honey Column. My honey is all sold. Printer's ink paid me this time. C. H. STORDOCK.
Durand, Ill., Oct. 16.

THE KIND OF ADVERTISING THAT PAYS.

We don't mind to pay for the ad't, but it brings too many orders and too much correspondence. We hope this will reach you so the ad't will not appear again this season. We have sold some 800 queens this year, and would like to stop, as we want to keep a few for next year. We had to fill an order for 10 to-day. We *know* it pays to advertise in GLEANINGS and in the *American Bee Journal*.
High Hill, Mo., Oct. 20. JNO. NEBEL & SON.

KIND WORDS FOR OUR STRAWBERRY-BOOK.

I received the book on strawberries, by T. B. Terry, and I tell you I was agreeably surprised. I have learned more from his book than I ever heard of, and it is so easy that any boy can make a success from it. I want Mr. Terry's A B C of Potato Culture, and Care of Horses and Cattle. JNO. W. HENRIE.
Excelsior Springs, Mo., Oct. 15.

Strawberry Culture.—A forty-cent book on this subject, intended especially for beginners in the art, has been prepared by two good authorities, T. B. Terry and A. I. Root, and is published by the latter, at Medina, O. A number of good illustrations enhance greatly its value.

[We regard the above as a pretty good commendation, especially as it comes from the *Country Gentleman*, a paper so careful in what it recommends.]

The thousands of farmers who ought to grow strawberries for their own table may learn how easily it can be done by reading "The A B C of Strawberry Culture," a little book written by T. B. Terry, and published by A. I. Root, Medina, O. Mr. Root, who is a successful berry-grower, adds an interesting chapter. Both writers give their own experience, and state particulars that are usually omitted in books of the kind.—*Farm Journal.*

This is an admirable treatise on strawberry-growing, written in the usual practical and interesting style of Mr. Terry. It is a book evoked out of his own experience, and for that reason it is doubly valuable. We find much instruction from its perusal; the observations and experience of such men as the author are always apt to lead to improvement, and many hints and suggestions may be found in this little book that will prove of much profit to the strawberry-grower. Mr. Root adds a chapter on Strawberry Culture, and there are some good illustrations from photographs throughout the book. We heartily recommend it.—*Orchard and Garden.*

I have the pleasure of acknowledging the receipt of Terry's and your strawberry-book, for which I am thankful. For fifty years I have been getting about all the works published on this subject; and I can say that I consider yours the best. It leaves nothing untold in the way of how to treat plants and the berries, besides being a very interesting and readable little book. To-day I start to attend the State Horticultural meeting, and in the discussion on the strawberry I shall recommend your work. The new suggestions and plans in your book are valuable, some of which I have practiced; but I was not aware of others' doing it. S. MILLER.
Bluffton, Mo., Dec. 1.

FROM W. J. GREEN, OF THE OHIO EXPERIMENT STATION.

I have been much pleased in looking over Mr. Terry's strawberry-book, not only with what is said, but with the manner of presentation as well. It is both instructive and entertaining, and all the more valuable because of the better element. It is so full of enthusiasm that it ought to enthuse others. There is need of a book of this kind, for most farmers either believe that they can not grow berries or it would not pay them to do so if they could. This book helps those who would help themselves, and convinces those who are open to conviction.
Columbus, O., Nov. 18. W. J. GREEN.

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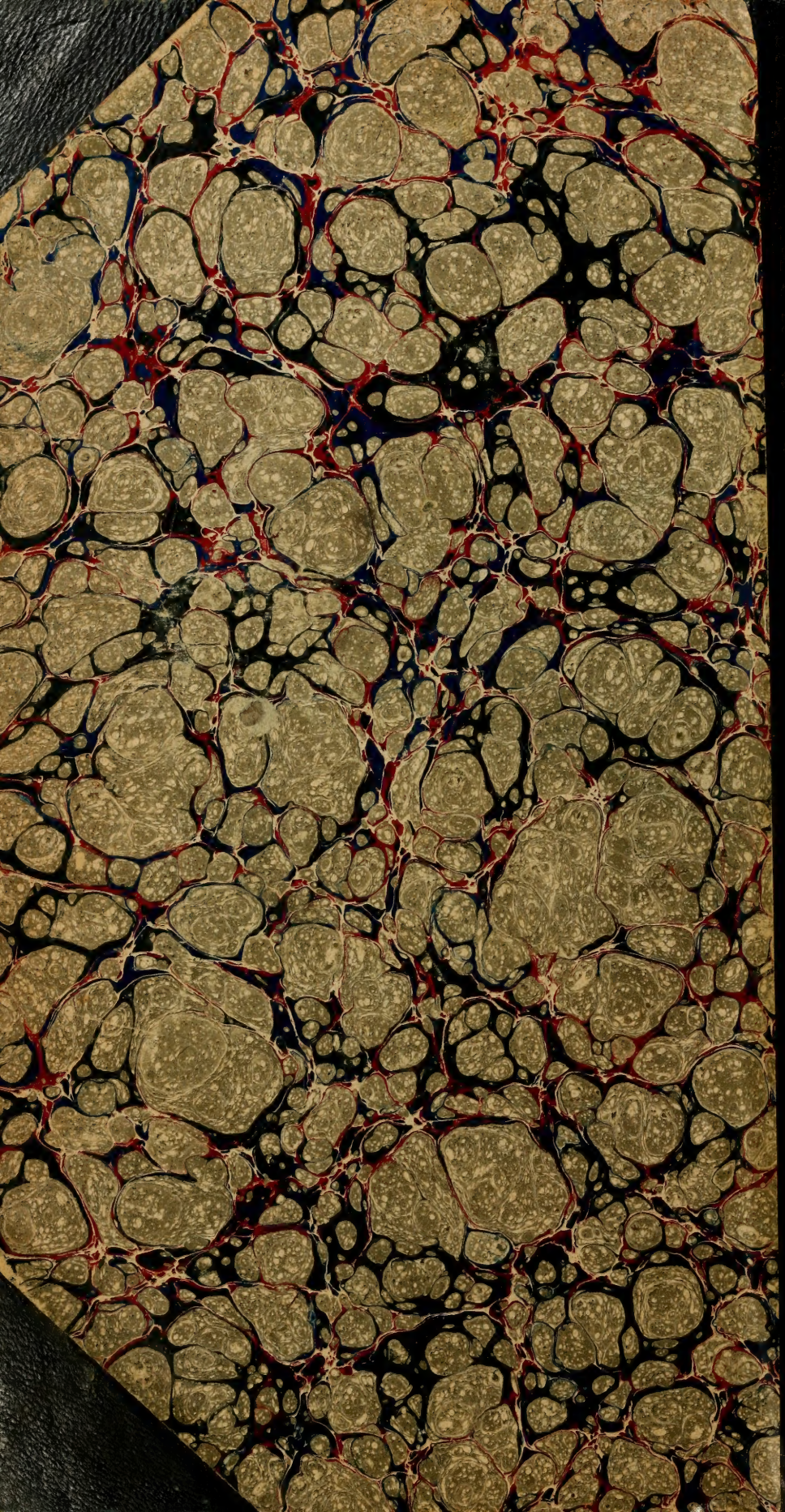
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